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STS NATURAL ENVIRONMENT ANALYSIS

FINAL REPORT

For the Contract Period

August 1 - September 30, 1984

(NASA-CR-171221) STS NATURAL ENVIRONMENT
ANALYSIS Final Report, 1 Aug. - 30 Sep.
1984 (Computer Sciences Corp.) 76 p
HC A05/MF A01

CSCL 22B

N85-12079

Unclas
G3/16 11329

November 7, 1984

Prepared For

**George C. Marshall Space Flight Center
National Aeronautics and Space Administration
Marshall Space Flight Center, Alabama 35812**

Under Contract NAS8-35988

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1.0 GENERAL

This is the final report for the two major tasks: 1) Evaluation of climatological data sets to determine the risk of Shuttle landing delay for selected alternate landing sites; 2) Construction of a Shuttle ascent data tape using L-0 atmospheric data for a specified Shuttle launch.

2.0 FINAL PROGRESS REPORT

2.1 PERFORMANCE

2.1.1 Shuttle Landing Delay Risks for Selected Alternate Landing Sites

Three alternate landing sites were selected for this analysis by NASA. They are Vandenberg Air Force Base (VAFB), Edwards Air Force Base (EAFB), and Miramar, California. Each site was analyzed as a single entity; then the best site between VAFB and EAFB, VAFB and Miramar, and EAFB and MIRAMAR was analyzed. Finally, the best site between VAFB/EAFB/Miramar was analyzed as one entity. A summary for the months of January and February is presented in Appendix A for the best site for VAFB/EAFB/Miramar.

2.1.2 Shuttle Ascent Data Tape Construction Using L-0 Atmospheric Data

This report presents a summary of the atmospheric environment at launch time (L-0) of the STS-13 mission. The FPS-16 Jimsphere (1413 UT), MSS Rawinsonde (1401 UT), and Super-LOKI Robin (1658 UT) systems were used to measure the upper level wind and thermodynamic parameters for the STS-13 launch. At altitudes above the rocket-measured data, the Global Reference Atmosphere parameters for April KSC conditions were used. A tabulation of the STS-13 final meteorological data for ascent which lists the wind and thermodynamic parameters versus altitude is presented in Appendix B.

3.0 CONCLUSIONS/RECOMMENDATIONS

The locations covered by the present capability are for the KSC and VAFB launch sites and for KSC, VAFB, EAFB, Northrup Strip, Orlando, Beaufort, Jacksonville, March AFB, Miramar, Homestead AFB, and McDill AFB landing sites. Additional landing sites for which there are standard atmospheric data available could be included in the mission analysis program.

A distinction is made between the Space Shuttle operating rules as related to meteorological variables and atmospheric constraints. The atmospheric constraints are translations or interpretations of the Shuttle operating rules so that the probability of occurrence and nonoccurrence of those atmospheric constraints can be obtained from standard historical meteorological data.

It is recommended that the Shuttle launch and flight operational rules for atmospheric restrictions be continually reviewed for rule changes. As these rule changes develop, they can be translated into atmospheric constraints so the mission analysis statistics can be performed.

APPENDIX A

**Shuttle Landing Delay Risks
for
Selected Alternate Landing Sites**

**Summary
of
January and February**

Best Site VAFB/EAFFB/Miramar

RETURN TO LAUNCH SITE FOR THE MONTH OF JAN

RUNDATE 8-14-84 TIME 17:30:22

PERIOD OF RECORD 1965 - 1970
DATA SOURCES :
DECK 144

**SERIALLY COMPLETE
BACHTEL ICE/FROST**

RUNWAY ANGLE 136.5 AND 316.5 DEGREES

PROBABILITIES IN PERCENT

CONSTRAINT/REQUIREMENT		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
THUNDERSTORM		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PRECIPITATION		8	5	8	5	5	4	5	6	7	7	7	8	7	7	5	5	7	6	8	7	9	8	7	8
CLOUD CEILING < OR = 15000 FT AND OR VISIBILITY < 0. N. MILES		18	18	18	18	15	17	21	26	25	27	23	24	22	22	23	23	22	26	27	20	20	20	21	18
VISIBILITY < 7. N. MILES		9	8	7	8	8	7	4	7	9	7	8	8	5	6	6	8	8	9	9	6	8	7	11	11
CLOUD COVER > .5		26	24	25	26	24	25	27	36	37	39	36	38	36	38	36	36	36	42	35	29	29	30	30	26
STEADY WINDS HEAD WIND > 18 KNOTS TAIL WIND > 7 KNOTS		1	0	1	0	1	1	1	1	0	0	1	1	1	2	1	1	0	0	0	0	0	1	1	1
SURFACE CROSSWIND > 10 KNOTS-		0	1	1	1	1	0	1	0	1	1	2	1	1	2	1	3	1	1	2	1	1	0	1	1
PEAK CROSSWIND > 99 KNOTS-		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANY OF THE ABOVE		24	21	22	24	23	24	27	35	35	36	34	35	34	34	32	33	32	38	32	25	26	26	26	24

ANY OF THE ABOVE FOR LAUNCH AND RTLS		24	21	22	24	23	24	27	35	35	36	34	35	34	34	32	33	32	38	32	25	26	26	26	24

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PRECEDING PAGE BLANK NOT FILMED 1 2

LSI,PRELAUNCH,LAUNCH,LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 1 HOUR = 0

LENGTH FREQ.
OF RUN OF RUN PROB. %
OF NO/50

RUN	LENGTHS	SUM 1	SUM 2	DAYS	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
1	12	21	39	24	100	0	0	0	0	0	0	0	0	0
2	5	9	18	11	46	100	0	0	0	0	0	0	0	0
3	2	4	9	5	23	50	100	0	0	0	0	0	0	0
4	1	2	5	3	13	28	56	100	0	0	0	0	0	0
5	0	1	3	2	8	17	33	60	100	0	2	0	0	0
6	0	1	2	1	5	11	22	40	67	100	0	0	0	0
7	1	1	1	1	3	6	11	20	33	50	100	0	0	0

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OF POOR QUALITY

LST-PRELAUNCH-LAUNCH-LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 1 HOUR = 1

LENGTH OF RUN	FREQ. OF RUN	SUM 1		SUM 2		PROB. % OF NO/GO		DAYS		J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
		LENGTHS	SUM 1	SUM 2	PROB. %	OF NO/GO	DAYS												
1	16	23	36	21	8	36	21	100	0	0	0	0	0	0	0	0	0	0	0
2	5	7	13	8	4	13	8	36	100	0	0	0	0	0	0	0	0	0	0
3	0	2	6	4	2	6	4	17	46	100	0	0	0	0	0	0	0	0	0
4	1	2	4	2	1	4	2	11	31	67	100	0	0	0	0	0	0	0	0
5	0	1	2	1	1	2	1	6	15	33	50	100	0	0	0	0	0	0	0
6	1	1	1	1	1	1	1	3	8	17	25	50	100	0	0	0	0	0	0

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LST, PREL AUNCH, LAUNCH, LANDING

DATE OF RUN	8-14-84	TIME	17:30:22	MONTH = 1	HOUR = 2
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LENGTH OF	FREQ. OF RUN	PROB. $\frac{1}{2}$ OF NO/GO
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LENGTHS		SUM 1		SUM 2		DAYS		JANUARY									
								J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
1	15	22	37	22				100	0	0	0	0	0	0	0	0	0
2	4	7	15	9				41	100	0	0	0	0	0	0	0	0
3	1	3	8	5				22	53	100	0	0	0	0	0	0	0
4	1	2	5	3				14	33	63	100	0	0	0	0	0	0
5	0	1	3	2				8	20	38	60	100	0	0	0	0	0
6	0	1	2	1				5	13	25	40	67	100	0	0	0	0
7	1	1	1	1				3	7	13	20	33	50	100	0	0	0

LST, PRELAUNCH, LAUNCH, LANDING

DATE OF RUN 8-14-80 TIME 17:30:22 MONTH = 1 HOUR = 3

LENGTH OF	FREQ. OF RUN	PROB. & OF NO/GO
1	1	0.0000
2	1	0.0000
3	1	0.0000
4	1	0.0000
5	1	0.0000
6	1	0.0000
7	1	0.0000
8	1	0.0000
9	1	0.0000
10	1	0.0000
11	1	0.0000
12	1	0.0000
13	1	0.0000
14	1	0.0000
15	1	0.0000
16	1	0.0000
17	1	0.0000
18	1	0.0000
19	1	0.0000
20	1	0.0000
21	1	0.0000
22	1	0.0000
23	1	0.0000
24	1	0.0000
25	1	0.0000
26	1	0.0000
27	1	0.0000
28	1	0.0000
29	1	0.0000
30	1	0.0000
31	1	0.0000
32	1	0.0000
33	1	0.0000
34	1	0.0000
35	1	0.0000
36	1	0.0000
37	1	0.0000
38	1	0.0000
39	1	0.0000
40	1	0.0000
41	1	0.0000
42	1	0.0000
43	1	0.0000
44	1	0.0000
45	1	0.0000
46	1	0.0000
47	1	0.0000
48	1	0.0000
49	1	0.0000
50	1	0.0000
51	1	0.0000
52	1	0.0000
53	1	0.0000
54	1	0.0000
55	1	0.0000
56	1	0.0000
57	1	0.0000
58	1	0.0000
59	1	0.0000
60	1	0.0000
61	1	0.0000
62	1	0.0000
63	1	0.0000
64	1	0.0000
65	1	0.0000
66	1	0.0000
67	1	0.0000
68	1	0.0000
69	1	0.0000
70	1	0.0000
71	1	0.0000
72	1	0.0000
73	1	0.0000
74	1	0.0000
75	1	0.0000
76	1	0.0000
77	1	0.0000
78	1	0.0000
79	1	0.0000
80	1	0.0000
81	1	0.0000
82	1	0.0000
83	1	0.0000
84	1	0.0000
85	1	0.0000
86	1	0.0000
87	1	0.0000
88	1	0.0000
89	1	0.0000
90	1	0.0000
91	1	0.0000
92	1	0.0000
93	1	0.0000
94	1	0.0000
95	1	0.0000
96	1	0.0000
97	1	0.0000
98	1	0.0000
99	1	0.0000
100	1	0.0000

	OF NO	SAYO	2 HRS	SUN 1	SUN 2	DAYS
IRON	LENGTHS	SUN 1	SUN 2			

[illegible]

Year	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369
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LST,PPELAUNCH,LAUNCH,LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 1 HOUR = 4

PROG. 3
OF NO/GO

LENGTH OF RUN	FREQ. OF RUN	SUM 1	SUM 2	DAYS	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
1	15	23	39	23	100	0	0	0	0	0	0	0	0	0
2	4	8	16	9	41	100	0	0	0	0	0	0	0	0
3	3	4	8	5	21	50	100	0	0	0	0	0	0	0
4	0	1	4	2	10	25	50	100	0	0	0	0	0	0
5	0	1	3	2	8	19	38	75	100	0	0	0	0	0
6	0	1	2	1	5	13	25	50	67	100	0	0	0	0
7	1	1	1	1	3	6	13	25	33	50	100	0	0	0

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LST.PRELAUNCH.LAUNCH.LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 1 HOUR = 5

LENGTH OF RUN
PROB. 2
OF NO/GO

ROW	LENGTHS	SUM 1	SUM 2	DAYS	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
1	8	20	41	24	100	0	0	0	0	0	0	0	0	0
2	7	12	21	12	51	100	0	0	0	0	0	0	0	0
3	3	5	9	5	22	43	100	0	0	0	0	0	0	0
4	1	2	4	2	10	19	44	100	0	0	0	0	0	0
5	3	1	2	1	5	10	22	50	100	0	0	0	0	0
6	1	1	1	1	2	3	11	25	50	100	0	0	0	0

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OF POOR QUALITY

LST, PRELAUNCH, LAUNCH, LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 1 HOUR = 6

LENGTH OF RUN
FREQ. OF RUN
PROG. 8
OF NO/GO

RUN	LENGTHS		SUM		DAYS		J-1		J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1
1	10	24	46	27			100	9	0	0	0	0	0	0	0	0	0
2	9	14	22	13			44	100	0	0	0	0	0	0	0	0	0
3	3	5	8	5			17	36	120	0	0	0	0	0	0	0	0
4	1	2	3	2			7	14	38	100	0	0	0	0	0	0	0
5	1	1	1	1			2	5	13	33	100	0	0	0	0	0	0

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LST.PRELAUNCH.LAUNCH.LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 1 HOUR = 7

LENGTH FREQ.
OF RUN OF RUNPROB. 2
OF NO/GO

RUN LENGTHS SUM 1 SUM 2 DAYS

J-1 J-2 J-3 J-4 J-5 J-6 J-7 J-8 J-9 J-10

1	13	26	60	35	100	0	0	0	0	0	0	0	0	0	0	0	0
2	7	13	34	20	57	100	0	0	0	0	0	0	0	0	0	0	0
3	2	6	21	10	35	62	100	0	0	0	0	0	0	0	0	0	0
4	1	4	15	9	25	44	71	100	0	0	0	0	0	0	0	0	0
5	1	3	11	6	18	32	52	73	100	0	0	0	0	0	0	0	0
6	1	13	8	5	13	24	38	53	73	100	0	0	0	0	0	0	0
7	0	1	6	4	10	19	29	40	55	75	100	0	0	0	0	0	0
8	0	1	5	3	8	15	24	33	45	63	82	100	0	0	0	0	0
9	0	1	4	2	7	12	19	27	36	50	67	80	100	0	0	0	0
10	0	1	3	2	5	9	14	20	27	38	50	60	75	100	0	0	0
11	0	1	2	1	3	6	10	13	18	25	33	40	50	67	82	100	0
12	1	1	1	1	2	3	5	7	9	13	17	20	25	33	40	50	67

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OF POOR QUALITY

LST,PRELAUNCH,LAUNCH,LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 1 HOUR = 8

LENGTH OF RUN	FREQ. OF RUN	SUM 1	SUM 2	PROB. % OF NO/GO DAYS	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
1	13	29	60	35	100	0	0	0	0	0	0	0	0	0
2	9	16	31	18	52	100	0	0	0	0	0	0	0	0
3	4	7	15	9	25	48	100	0	0	0	0	0	0	0
4	3	3	8	5	13	26	53	100	0	0	0	0	0	0
5	1	3	5	3	8	16	33	63	100	0	0	0	0	0
6	2	2	2	1	3	6	13	25	40	100	0	0	0	0

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LST,PRELAUNCH,LAUNCH,LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 1 HOUR = 9

LENGTH FREQ.
OF RUN OF NO/GO

PROB. # OF NO/GO	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
1	14	27	67	36	100	0	0	0	0	0
2	4	13	33	20	55	100	0	0	0	0
3	3	9	20	12	33	61	0	0	0	0
4	4	6	11	7	18	33	100	0	0	0
5	1	2	5	3	8	15	45	100	0	0
6	3	1	3	2	5	9	27	60	100	0
7	0	1	2	1	3	6	18	40	67	100
8	1	1	1	1	2	3	9	20	33	50

ORIGINAL PAGE 19
OF POOR QUALITY

LST,PRELAUNCH,LAUNCH,LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 1 HOUR = 10

LENGTH FREQ.
OF RUN OF RUN

PROB. %

OF NO/GO

RUN LF/GTHS SUM 1 SUM 2 DAYS

J-1 J-2 J-3 J-4 J-5 J-6 J-7 J-8 J-9 J-10

1	13	27	57	34	100	0	0	0	0	0	0	0	0	0
2	5	14	37	18	53	100	0	0	0	0	0	0	0	0
3	5	9	16	10	28	53	100	0	0	0	0	0	0	0
4	1	4	7	4	12	23	44	100	0	0	0	0	0	0
5	3	3	3	2	5	10	19	43	100	0	0	0	0	0

ORIGINAL PAGE 8
OF POOR QUALITY

LST, PRELAUNCH, LAUNCH, LANDING

MONTH = 1 HOUR = 11

DATE OF RUN 8-14-94 TIME 17:30:22

PROG. 3
OF NO/GO

LENGTH
OF RUN

LENGTH OF RUN	FREQ. OF RUN	SUM 1	SUM 2	DAYS	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
1	12	25	57	35	100	0	0	0	0	0	0	0	0	0
2	4	13	32	20	56	100	0	0	0	0	0	0	0	0
3	5	9	19	12	33	59	100	0	0	0	0	0	0	0
4	2	4	11	6	18	31	53	100	0	0	0	0	0	0
5	-	2	6	4	11	19	32	60	100	0	0	0	0	0
6	3	1	4	2	7	13	21	40	67	100	0	0	0	0
7	3	1	3	2	5	9	16	30	50	75	100	0	0	0
8	3	1	2	1	4	6	11	20	33	50	67	100	0	0
9	1	1	1	1	2	3	5	10	17	25	33	50	100	0

ORIGINAL PAGE IS
OF POOR QUALITY

LST,PRELAUNCH,LAUNCH,LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 1 HOUR = 12

LENGTH FREQ. PROB. 2
OF RUN OF NO/GO

RUN	LENGTHS		SUM		DAYS		J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
	1	2	1	2	1	2	100	0	0	0	0	0	0	0	0	0
1	9	23	55	34			100	0	0	0	0	0	0	0	0	0
2	5	14	32	20			58	100	0	0	0	0	0	0	0	0
3	4	9	18	11			33	56	100	0	0	0	0	0	0	0
4	2	5	9	6			16	28	50	100	0	0	0	0	0	0
5	2	3	4	2			7	13	22	44	100	0	0	0	0	0
6	1	1	1	1			2	3	6	11	25	100	0	0	0	0

ORIGINAL PAGE IS
OF POOR QUALITY

LST,PRELAUNCH,LAUNCH,LANDING

MONTH = 1 HOUR = 13

DATE OF RUN 8-14-84 TIME 17:30:22

LENGTH FREQ. PROB. 2
OF RUN OF NO/GO
RUN LENGTHS SUM 1 SUM 2 DAYS

		J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
1	9	20	55	34	100	0	0	0	0	0	0
2	3	11	35	21	64	100	0	0	0	0	0
3	2	8	24	15	44	69	0	0	0	0	0
4	2	6	16	10	29	100	0	0	0	0	0
5	1	4	10	6	18	42	0	0	0	0	0
6	1	3	6	4	11	25	100	0	0	0	0
7	1	2	3	2	5	9	60	0	0	0	0
8	1	1	1	1	2	3	30	100	0	0	0
							10	33	100	0	0

ORIGINAL PAGE 2
OF POOR QUALITY

LST,PRELAUNCH-LAUNCH-LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 1 HOUR = 14

LENGTH OF RUN
FREQ.
OF RUNPROB. %
OF NO/GO

RUN	LENGTHS	SUM 1	SUM 2	DAYS	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
1	12	25	54	32	100	0	0	0	0	0	0	0	0	0
2	5	13	29	17	54	100	0	0	0	0	0	0	0	0
3	3	8	16	9	30	55	100	0	0	0	0	0	0	0
4	3	5	8	5	15	28	50	100	0	0	0	0	0	0
5	1	2	3	2	6	10	19	38	100	0	0	0	0	0
6	1	1	1	1	2	3	6	13	33	100	0	0	0	0

ORIGINAL PAGE
OF POOR QUALITY

LST.PRELUNCH,LAUNCH,LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 1 HOUR = 15

LENGTH OF RUN FREQ. OF RUN PROB. x OF NC/GO

RUN	LENGTHS											SUM 1	SUM 2	PROB. x OF NC/GO
	1	2	3	4	5	6	7	8	9	10	11			
1	9	22	54	33						100	0	0	0	0
2	6	13	32	19						59	100	0	0	0
3	3	7	19	12						35	59	0	0	0
4	2	4	12	7						22	38	63	0	0
5	1	2	8	5						15	25	42	100	0
6	0	1	6	4						11	19	32	75	100
7	0	1	5	3						9	16	26	63	83
8	0	1	4	2						7	13	21	50	67
9	0	1	3	2						6	9	16	38	50
10	0	1	2	1						4	6	11	25	33
11	1	1	1	1						2	3	5	13	17

ORIGINAL PAGE IS
OF POOR QUALITY

LST,PRELAUNCH,LAUNCH,LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 1 HOUR = 16

LENGTH FREQ. PROB. %
OF RUN OF NO/GO

RUN	LENGTHS	SUM 1	SUM 2	DAYS	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
1	15	26	53	32	100	0	0	0	0	0	0	0	0	0
2	5	11	27	16	51	100	0	0	0	0	0	0	0	0
3	3	6	16	10	30	39	100	0	0	0	0	0	0	0
4	2	3	10	6	19	37	63	100	0	0	0	0	0	0
5	0	1	7	4	13	26	44	70	100	0	0	0	0	0
6	0	1	6	4	11	22	38	60	86	100	0	0	0	0
7	0	1	5	3	9	19	31	50	71	83	100	0	0	0
8	0	1	4	2	8	15	25	40	57	67	80	100	0	0
9	0	1	3	2	6	11	19	30	43	50	60	75	100	0
10	0	1	2	1	4	7	13	20	29	33	40	50	67	100
11	1	1	1	1	2	4	6	10	14	17	20	25	33	50

ORIGINAL PAUL 3
OF POOR QUALITY

LST,PRELAUNCH,LAUNCH,LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 1 HOUR = 17

LENGTH FREQ.
OF RUN OF NO/60

PROB. 1	SUM 1	SUM 2	DAYS	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
1	12	26	64	38	100	0	0	0	0	0	0	0	0
2	5	14	38	23	59	100	0	0	0	0	0	0	0
3	4	9	24	14	38	63	0	0	0	0	0	0	0
4	2	5	15	9	23	100	0	0	0	0	0	0	0
5	1	3	10	6	16	63	100	0	0	0	0	0	0
6	1	2	7	4	11	42	67	100	0	0	0	0	0
7	0	1	5	3	18	29	47	70	100	0	0	0	0
8	0	1	4	2	8	21	33	50	71	100	0	0	0
9	0	1	3	2	6	17	27	40	57	80	100	0	0
10	0	1	3	2	5	13	20	30	43	60	75	100	0
11	1	1	1	1	3	8	13	20	29	40	50	67	100
					2	4	7	10	14	20	25	33	50

ORIGINAL PAGE IS
OF POOR QUALITY

LSI, PRELAUNCH, LAUNCH, LANDING

DATE OF RUN 8-14-88 TIME 17:30:22 MONTH = 1 HOUR = 18

LENGTH OF RUN
FREQ. OF RUN
PROB. OF NC/GO

RUN	LENGTHS		SUM		SUM 2		DAYS		J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
	10	21	32	43	54	65	76	87	98	09	10	21	32	43	54	65	76	87
1	10	21	32	43	54	65	76	87	98	09	10	21	32	43	54	65	76	87
2	3	11	19	27	35	43	51	59	67	75	83	91	99	07	15	23	31	39
3	3	8	13	18	23	28	33	38	43	48	53	58	63	68	73	78	83	88
4	2	5	8	11	14	17	20	23	26	29	32	35	38	41	44	47	50	53
5	2	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35
6	0	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33
7	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
8	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
9	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

ORIGINAL FILE
OF POOR QUALITY

LST,PRELAUNCH,LAUNCH,LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 1 HOUR = 19

PROB. 2
OF NO/GOLENGTH
OF RUN

RUN LENGTHS SUM 1 SUN 2 DAYS

	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
1	100	0	0	0	0	0	0	0	0	0
2	40	100	0	0	0	0	0	0	0	0
3	12	29	100	0	0	0	0	0	0	0
4	2	6	20	100	0	0	0	0	0	0

ORIGINAL PAGE IS
OF POOR QUALITY

LST,PRELAUNCH,LAUNCH,LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 1 HOUR = 20

LENGTH FREQ.
OF RUN OF RUNPROB. 2
OF NO/60

RUN	LENGTHS	SUM 1	SUM 2	DAYS	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
1	13	25	44	26	100	0	0	0	0	0	0	0	0	0
2	9	12	19	11	43	100	0	0	0	0	0	0	0	0
3	1	3	7	4	16	37	100	0	0	0	0	0	0	0
4	1	2	4	2	9	21	57	100	0	0	0	0	0	0
5	0	1	2	1	5	11	29	50	100	0	0	0	0	0
6	1	1	1	1	2	5	14	25	50	100	0	0	0	0

ORIGINAL PAGE 15
OF FOUR QUALITY

LST,PRELAUNCH,LAUNCH,LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 1 HOUR = 21

LENGTH FREQ. PROB. %
OF RUN OF NO/GO

RUN	LENGTHS	SUR 1	SUR 2	DAYS	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
1	18	28	44	26	100	0	0	0	0	0	0	0	0	0
2	7	10	16	10	36	100	0	0	0	0	0	0	0	0
3	2	3	6	4	14	33	100	0	0	0	0	0	0	0
4	0	1	3	2	7	19	50	100	0	0	0	0	0	0
5	0	1	2	1	5	13	33	67	100	0	0	0	0	0
6	1	1	1	1	2	6	17	33	50	100	0	0	0	0

ORIGINAL PAGE 11
OF POOR QUALITY

1ST.PRELAUNCH,LAUNCH,LOADING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 1 HOUR = 22

LENGTH OF RUN
FREQ. OF RUN
PROB. %
OF NO/GO

RUN	LENGTHS	SUM 1	SUM 2	DAYS	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
1	17	27	43	26	100	0	0	0	0	0	0	0	0	0
2	5	10	16	10	37	100	0	0	0	0	0	0	0	0
3	4	5	6	4	14	38	100	0	0	0	0	0	0	0
4	1	1	1	1	2	6	17	100	0	0	0	0	0	0

ORIGINAL PAGE
OF POOR QUALITY

LST,PRELAUNCH,LAUNCH,LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 1 HOUR = 23

LENGTH
OF RUNFREQ.
OF RUNPROB. %
OF NO/GO

RUN

LENGTHS

SUM 1

SUM 2

DAYS

J-1

J-2

J-3

J-4

J-5

J-6

J-7

J-8

J-9

J-10

1

14

23

41

24

100

0

0

0

0

0

0

0

0

0

2

5

9

18

11

44

100

0

0

0

0

0

0

0

0

3

1

4

9

5

22

50

100

0

0

0

0

0

0

0

4

1

3

5

3

12

28

56

100

0

0

0

0

0

0

5

2

2

2

1

5

11

22

40

100

0

0

0

0

0

RETURN TO LAUNCH SITE FOR THE MONTH OF FEB

PAGE 1

UNDATE 8-14-84 TIME 17:30:22

PERIOD OF RECORD 1965 - 1970

ATA SOURCES :

DECK 144

SERIALLY COMPLETE

BACHTEL ICE/FROST

UNWAY ANGLE 136.5 AND 316.5 DEGREES

PROBABILITIES IN PERCENT

MR	HR	MR	HR	MR	HR	MR	HR	MR	HR	MR	HR	MR	HR	MR	HR	MR	HR	MR	HR	MR	HR	MR	HR	MR	HR
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25

U	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
U	8	8	5	8	8	5	5	5	6	9	6	5	4	3	3	2	4	2	2	4	3	4	3	7	7

LOUD CEILING
OR = 15000 FT
NO OR VISIBILITY
0. N. MILES

21	16	20	19	17	19	19	25	25	26	26	23	24	24	21	22	23	25	23	21	18	19	19	21	21	21
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

ORIGINAL PAGE
OF POOR QUALITY

7. N. MILES

5	4	7	5	5	5	4	8	9	11	9	8	5	7	3	2	4	7	9	9	7	6	5	7	7	7
---	---	---	---	---	---	---	---	---	----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

LOUD COVER

27	23	27	26	25	26	25	32	35	37	37	39	40	39	38	39	42	42	36	31	25	25	26	27	27	27
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

STEADY WINDS

HEAD WIND > 18 KNOTS

U	0	0	1	0	1	1	1	1	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

SURFACE CROSSWIND

1	U	1	1	1	1	1	2	1	2	1	2	2	3	4	2	1	1	1	1	0	0	1	2	2	2
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

EAK CROSSWIND

U	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

ANY OF THE ABOVE

27	23	27	26	26	26	25	34	36	38	40	38	41	41	41	41	43	43	38	33	26	26	27	28	28	28
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

ANY OF THE ABOVE FOR

27	23	27	26	26	26	25	34	36	38	40	38	41	41	41	41	43	43	38	33	26	26	27	28	28	28
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

LAUNCH AND RLS

MR	HR	MR	HR	MR	HR	MR	HR	MR	HR	MR	HR	MR	HR	MR	HR	MR	HR	MR	HR	MR	HR	MR	HR	MR	HR
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25

ANY OF THE ABOVE FOR

27	23	27	26	26	26	25	34	36	38	40	38	41	41	41	41	43	43	38	33	26	26	27	28	28	28
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

LST, PPELAUNCH, LUNCH, LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 2 HOUR = 0

LENGTH
OF RUNPROC. %
OF NO/GO

WUN	LENGTHS	SUM 1	SUM 2	DAYS	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
1	17	27	45	27	100	0	0	0	0	0	0	0	0	0
2	5	10	18	11	40	100	0	0	0	0	0	0	0	0
3	3	5	8	5	18	44	100	0	0	0	0	0	0	0
4	1	2	3	2	7	17	38	100	0	0	0	0	0	0
5	1	1	1	1	2	6	13	33	100	0	0	0	0	0

ORIGINAL PAGE IS
OF POOR QUALITY

LST,PRELAUNCH,LAUNCH,LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 2 HOUR = 1

LENGTH FREQ.
OF RUN
OFPROB. %
OF NO/GO

RUN LENGTHS SUM 1 SUM 2 DAYS

	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
1	100	0	0	0	0	0	0	0	0	0
2	42	100	0	0	0	0	0	0	0	0
3	16	38	100	0	0	0	0	0	0	0
4	5	13	33	100	0	0	0	0	0	0

ORIGINAL PAGE 1
OF POOR QUALITY

LST,PRELAUNCH,LAUNCH,LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 2 HOUR = 2

LENGTH OF RUN	FREQ. OF RUN	SUM		PROB. 2 OF NO/GO	DAYS										
		1	2		J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10	
1	17	28	45	27	100	0	0	0	0	0	0	0	0	0	
2	8	11	17	10	38	100	0	0	0	0	0	0	0	0	
3	1	3	6	4	13	35	100	0	0	0	0	0	0	0	
4	1	2	3	2	7	18	50	100	0	0	0	0	0	0	
5	1	1	1	1	2	6	17	33	100	0	0	0	0	0	

ORIGINAL PAGE IS
OF POOR QUALITY

1ST,PRELAUNCH,LAUNCH,LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 2 HOUR = 3

PROF. 3
OF NO/GOLENGTH
OF RUN

RUN LENGTHS SUM 1 SUM 2 DAYS

J-1 J-2 J-3 J-4 J-5 J-6 J-7 J-8 J-9 J-10

1	16	27	44	26	100	0	0	0	0	0	0	0	0	0
2	7	11	17	10	39	100	0	0	0	0	0	0	0	0
3	2	4	6	4	14	35	100	0	0	0	0	0	0	0
4	2	2	2	1	5	12	33	100	0	0	0	0	0	0

ORIGINAL PAGE OF
OF POOR QUALITY

1ST,PRELAUNCH,LAUNCH,LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 2 HOUR = 4

LENGTH OF RUN
FREQ.
OF RUNPROB. %
OF NO/GO

RUN LENGTHS SUM 1 SUM 2 DAYS

J-1 J-2 J-3 J-4 J-5 J-6 J-7 J-8 J-9 J-10

1	13	24	43	26	100	0	0	0	0	0	0	0	0	0
2	6	11	19	11	44	100	0	0	0	0	0	0	0	0
3	3	5	8	5	19	42	100	0	0	0	0	0	0	0
4	1	2	3	2	7	16	38	100	0	0	0	0	0	0
5	1	1	1	1	2	5	13	33	100	0	0	0	0	0

ORIGINAL PAGE 12
OF POOR QUALITY

1ST,PRELAUNCH,LAUNCH,LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 2 HOUR = 5

PROB. 2
OF NO/GO

LENGTH OF RUN	FREQ. OF RUN	SUM 1	SUM 2	DAYS	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
1	11	23	43	26	100	0	0	0	0	0	0	0	0	0
2	6	12	20	12	47	100	0	0	0	0	0	0	0	0
3	5	6	8	5	19	40	100	0	0	0	0	0	0	0
4	0	1	2	1	5	10	25	100	0	0	0	0	0	0
5	1	1	1	1	2	5	13	50	100	0	0	0	0	0

ORIGINAL PAGE 10
OF POOR QUALITY

LST,PRLAUNCH,LAUNCH,LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 2 HOUR = 6

LENGTH OF RUN	FREQ. OF RUN	PROB. 2 OF NO/GO											
		SUM 1	SUM 2	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
1	14	24	41	100	0	0	0	0	0	0	0	0	0
2	6	10	17	41	100	0	0	0	0	0	0	0	0
3	1	4	7	17	41	100	0	0	0	0	0	0	0
4	3	3	3	7	18	43	100	0	0	0	0	0	0

ORIGINAL PAGE 10
OF POOR QUALITY

LST, PRFLAUNCH, LAUNCH, LANDING

DATE OF RUN		8-14-84	TIME	17:30:22	MONTH = 2 HOUR = 7											
RUN	LENGTHS OF RUN	FREQ.		PROL. # OF NO/GO	DAYS		J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
		SUM 1	SUM 2													
1	14	29	57	34			100	0	0	0	0	0	0	0	0	0
2	9	15	29	17			49	100	0	0	0	0	0	0	0	0
3	5	6	13	8			23	46	100	0	0	0	0	0	0	0
4	3	1	7	4			12	25	54	100	0	0	0	0	0	0
5	3	1	6	4			11	21	46	86	100	0	0	0	0	0
6	3	1	5	3			9	14	38	71	83	100	0	0	0	0
7	0	1	4	2			7	14	31	57	67	80	100	0	0	0
8	0	1	3	2			5	11	23	43	50	60	75	100	0	0
9	1	1	2	1			4	7	15	29	33	40	50	67	100	0
10	1	1	1	1			2	4	8	14	17	20	25	33	50	100

ORIGINAL FILED
OF POOR QUALITY.

LST.PRELAUNCH.LAUNCH.LANDING

DATE OF RUN 8-19-84 TIME 17:30:22 MONTH = 2 HOUR = 8

LENGTH FREQ.
OF RUN
WOM

LENGTHS SUM 1 SUM 2 DAYS

	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
1	12	28	60	36	100	0	0	0	0	0
2	10	16	32	19	53	100	0	0	0	0
3	3	6	16	10	27	50	0	0	0	0
4	0	3	10	6	17	31	0	0	0	0
5	1	3	7	4	12	22	100	0	0	0
6	1	2	4	2	7	13	70	0	0	0
7	0	1	2	1	3	6	40	0	0	0
8	1	1	1	1	2	3	25	100	0	0
							57	50	0	0
							29	100	0	0
							14	25	100	0

ORIGINAL FILE
OF POOR QUALITY

LST,PRELAUNCH,LAUNCH,LANDING

DATE OF RUN		8-14-84	TIME	17:30:22	MONTH = 2 HOUR = 9									
LENGTH OF RUN	FREQ. OF RUN	PROB. 2 OF NG/GO		DAYS	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
		SUM 1	SUM 2											
1	18	34	63	38	100	0	0	0	0	0	0	0	0	0
2	9	16	29	17	46	100	0	0	0	0	0	0	0	0
3	4	7	13	8	21	45	100	0	0	0	0	0	0	0
4	1	3	6	4	10	21	46	100	0	0	0	0	0	0
5	1	2	3	2	5	10	23	50	100	0	0	0	0	0
6	1	1	1	1	2	3	8	17	33	100	0	0	0	0

ORIGINAL PAGE
OF FOUR

LST,PRELAUNCH,LAUNCH,LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 2 HOUR = 10

RUN	LENGTH OF RUN	FREQ. OF RUN	PROB. % OF NO/GO												
			DAYS												
			SUM 1	SUM 2	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10	
1	14	31	66	40	100	0	0	0	0	0	0	0	0	0	0
2	7	17	35	21	53	100	0	0	0	0	0	0	0	0	0
3	5	10	18	11	27	51	100	0	0	0	0	0	0	0	0
4	3	5	8	5	12	23	44	100	0	0	0	0	0	0	0
5	1	2	3	2	5	9	17	38	100	0	0	0	0	0	0
6	1	1	1	1	2	3	6	13	33	100	0	0	0	0	0

ORIGINAL PAGE IS
OF POOR QUALITY

LST,PRE LAUNCH,LAUNCH,LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 2 HOUR = 11

LENGTH FREQ.
OF RUN OF RUNPROG. 2
OF NO/GO

RUN LENGTHS SUM 1 SUM 2 DAYS J-1 J-2 J-3 J-4 J-5 J-6 J-7 J-8 J-9 J-10

1	15	31	63	38	100	0	0	0	0	0	0	0	0	0
2	8	16	32	19	51	100	0	0	0	0	0	0	0	0
3	3	8	16	10	25	50	0	0	0	0	0	0	0	0
4	3	5	8	5	13	25	100	0	0	0	0	0	0	0
5	1	2	3	2	5	9	38	100	0	0	0	0	0	0
6	1	1	1	1	2	3	13	33	100	0	0	0	0	0

ORIGINAL
OF POOR QUALITY

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 2 HOUR = 12

ROW	LENGTHS	SUM 1	SUM 2	DAYS
1	1	1	1	1
2	2	3	3	2
3	3	6	6	3
4	4	10	10	4
5	5	15	15	5
6	6	21	21	6
7	7	28	28	7
8	8	36	36	8
9	9	45	45	9
10	10	55	55	10
11	11	66	66	11
12	12	78	78	12
13	13	91	91	13
14	14	105	105	14
15	15	120	120	15
16	16	136	136	16
17	17	153	153	17
18	18	171	171	18
19	19	190	190	19
20	20	210	210	20
21	21	231	231	21
22	22	253	253	22
23	23	276	276	23
24	24	300	300	24
25	25	325	325	25
26	26	351	351	26
27	27	378	378	27
28	28	406	406	28
29	29	435	435	29
30	30	465	465	30
31	31	496	496	31
32	32	528	528	32
33	33	561	561	33
34	34	595	595	34
35	35	630	630	35
36	36	666	666	36
37	37	703	703	37
38	38	741	741	38
39	39	780	780	39
40	40	820	820	40
41	41	861	861	41
42	42	903	903	42
43	43	946	946	43
44	44	990	990	44
45	45	1035	1035	45
46	46	1081	1081	46
47	47	1128	1128	47
48	48	1176	1176	48
49	49	1225	1225	49
50	50	1275	1275	50
51	51	1326	1326	51
52	52	1378	1378	52
53	53	1431	1431	53
54	54	1485	1485	54
55	55	1540	1540	55
56	56	1596	1596	56
57	57	1653	1653	57
58	58	1711	1711	58
59	59	1770	1770	59
60	60	1830	1830	60
61	61	1891	1891	61
62	62	1953	1953	62
63	63	2016	2016	63
64	64	2080	2080	64
65	65	2145	2145	65
66	66	2211	2211	66
67	67	2278	2278	67
68	68	2346	2346	68
69	69	2415	2415	69
70	70	2485	2485	70
71	71	2556	2556	71
72	72	2628	2628	72
73	73	2701	2701	73
74	74	2775	2775	74
75	75	2850	2850	75
76	76	2926	2926	76
77	77	3003	3003	77
78	78	3081	3081	78
79	79	3160	3160	79
80	80	3240	3240	80
81	81	3321	3321	81
82	82	3403	3403	82

ORIGINAL PAGE IS
OF POOR QUALITY

LST,PRELAUNCH,LAUNCH,LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 2 HOUR = 13

LENGTH		FREQ.		PROB. %		OF NO/GO									
OF	RUN	LENGTHS	SUM 1	SUM 2	DAYS	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
1	10	27	67	41		100	0	0	0	0	0	0	0	0	0
2	7	17	40	24		60	100	0	0	0	0	0	0	0	0
3	4	10	23	14		34	57	100	0	0	0	0	0	0	0
4	3	6	13	8		19	32	57	100	0	0	0	0	0	0
5	1	3	7	4		10	17	30	54	100	0	0	0	0	0
6	0	2	4	2		6	10	17	31	57	100	0	0	0	0
7	2	2	2	1		3	5	9	15	29	50	100	0	0	0

ORIGINAL PRINT IS
OF POOR QUALITY

LST,PRELAUNCH,LAUNCH,LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 2 HOUR = 14

LENGTH FREQ.
OF RUN OF NO/GO
RUN LENGTHS SUM 1 SUM 2 DAYS

	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
1	100	0	0	0	0	0	0	0	0	0
2	56	100	0	0	0	0	0	0	0	0
3	29	53	100	0	0	0	0	0	0	0
4	16	29	55	100	0	0	0	0	0	0
5	6	11	20	36	100	0	0	0	0	0
6	4	8	15	27	75	100	0	0	0	0
7	3	5	10	18	50	67	100	0	0	0
8	1	3	5	9	25	33	50	100	0	0

ORIGINAL FILED
OF POOR QUALITY

LAUNCH, LANDING

DATE OF RUN	8-14-84	TIME	17:30:22
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LENGTH OF	FREQ. OF RUN	PROC. % OF NO/GO
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9
10	10	10
11	11	11
12	12	12
13	13	13
14	14	14
15	15	15
16	16	16
17	17	17
18	18	18
19	19	19
20	20	20
21	21	21
22	22	22
23	23	23
24	24	24
25	25	25
26	26	26
27	27	27
28	28	28
29	29	29
30	30	30
31	31	31
32	32	32
33	33	33
34	34	34
35	35	35
36	36	36
37	37	37
38	38	38
39	39	39
40	40	40
41	41	41
42	42	42
43	43	43
44	44	44
45	45	45
46	46	46
47	47	47
48	48	48
49	49	49
50	50	50
51	51	51
52	52	52
53	53	53
54	54	54
55	55	55
56	56	56
57	57	57
58	58	58
59	59	59
60	60	60
61	61	61
62	62	62
63	63	63
64	64	64
65	65	65
66	66	66
67	67	67
68	68	68
69	69	69
70	70	70
71	71	71
72	72	72
73	73	73
74	74	74
75	75	75
76	76	76
77	77	77
78	78	78
79	79	79
80	80	80
81	81	81
82	82	82
83	83	83
84	84	84
85	85	85
86	86	86
87	87	87
88	88	88
89	89	89
90	90	90
91	91	91
92	92	92
93	93	93
94	94	94
95	95	95
96	96	96
97	97	97
98	98	98
99	99	99
100	100	100

RUN	LENGTHS		SUM	DAYS										
	SUM	2		J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10	
1	12	29	67	41	100	0	0	0	0	0	0	0	0	0
2	8	17	38	23	57	100	0	0	0	0	0	0	0	0
3	4	9	21	13	31	55	100	0	0	0	0	0	0	0
4	3	5	12	7	18	32	57	100	0	0	0	0	0	0
5	0	2	7	4	10	18	33	58	100	0	0	0	0	0
6	0	2	5	3	7	13	24	42	71	100	0	0	0	0
7	1	2	3	2	4	8	14	25	43	60	100	0	0	0
8	1	1	1	1	1	3	5	8	14	20	33	100	0	0

ORIGINAL PAGE IS
OF POOR QUALITY

LST,PRELAUNCH,LAUNCH,LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 2 HOUR = 16

LENGTH FREQ.
OF RUN OF NO/GO

LENGTHS SUM 1 SUM 2 DAYS

	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
1	11	31	72	43						
2	11	20	41	25						
3	3	9	21	13						
4	4	6	12	7						
5	0	2	6	4						
6	1	2	4	2						
7	0	1	2	1						
8	1	1	1	1						
	100	100	100	100	0	0	0	0	0	0
	57	51	100	0	0	0	0	0	0	0
	29	29	57	100	0	0	0	0	0	0
	17	15	29	50	100	0	0	0	0	0
	8	10	19	33	67	100	0	0	0	0
	6	5	10	17	33	50	100	0	0	0
	3	2	5	8	17	25	50	100	0	0
	1	1	1	1	1	1	1	1	1	1

ORIGINAL PAGE 3
OF POOR QUALITY

LST,PRELAUNCH,LAUNCH,LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 2 HOUR = 17

LENGTH FREQ.
OF RUN OF RUN

PROB. % OF NO/60	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
1	11	29	71	43	100	0	0	0	0	0
2	8	18	42	25	59	100	0	0	0	0
3	3	10	24	14	34	57	100	0	0	0
4	5	7	14	8	20	33	58	100	0	0
5	0	2	7	4	10	17	29	50	0	0
6	0	2	5	3	7	12	21	36	0	0
7	1	2	3	2	4	7	13	21	100	0
8	1	1	1	1	1	2	4	7	14	20

ORIGINAL PAGE IS
OF POOR QUALITY

LST,PRELAUNCH,LAUNCH,LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 2 HOUR = 18

PROB. 2
OF NO/GO

LENGTH OF RUN	FREQ. OF RUN	SUM 1	SUM 2	DAYS	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
1	17	29	62	38	100	0	0	0	0	0	0	0	0	0
2	4	12	33	20	53	100	0	0	0	0	0	0	0	0
3	3	8	21	13	34	64	100	0	0	0	0	0	0	0
4	3	5	13	8	21	39	62	100	0	0	0	0	0	0
5	3	2	8	5	13	24	38	62	100	0	0	0	0	0
6	1	2	6	4	10	18	29	46	75	100	0	0	0	0
7	0	1	4	2	6	12	19	31	50	67	100	0	0	0
8	0	1	3	2	5	9	14	23	38	50	75	100	0	0
9	0	1	2	1	3	6	10	15	25	33	50	67	100	0
10	1	1	1	1	2	3	5	8	13	17	25	33	50	100

ORIGINAL PAGE IS
OF POOR QUALITY

LST-PRELAUNCH, LAUNCH, LANDING

DATE OF RUN 6-14-84 TIME 17:30:22 MONTH = 2 HOUR = 19

LENGTH FREQ.
OF RUN OF NO/GO

PROB. #	SUM 1	SUM 2	DAYS	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
1	18	33	55	33	100	0	0	0	0	0	0	0	0
2	7	12	25	15	45	100	0	0	0	0	0	0	0
3	1	5	13	8	24	52	100	0	0	0	0	0	0
4	1	4	3	5	15	32	62	0	0	0	0	0	0
5	2	3	4	2	7	16	31	100	0	0	0	0	0
6	1	1	1	1	2	4	6	25	100	0	0	0	0

ORIGINAL PAGE IS
OF POOR QUALITY

LST.PRELAUNCH.LAUNCH.LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 2 HOUR = 20

LENGTH OF RUN
FREQ.
OF RUN
SUM 1 SUM 2

PROG. 8
OF NO/GO
DAYS

	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
1	23	31	43	26	100	28	9	5	2	1
2	6	12	4	2	1	1	1	1	1	1
3	1	2	4	2	1	1	1	1	1	1
4	1	1	1	1	1	1	1	1	1	1
5	1	1	1	1	1	1	1	1	1	1

ORIGINAL PAGE IS
OF POOR QUALITY

LST,PRE AUNCH,LAUNCH,LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 2 HOUR = 21

LENGTH FREQ. PROB. %
OF RUN OF N2/GO

RUN	LENGTHS	SUM 1	SUM 2	DAY	J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
1	22	29	43	26	100	0	0	0	0	0	0	0	0	0
2	4	7	14	8	33	100	0	0	0	0	0	0	0	0
3	1	3	7	4	16	50	100	0	0	0	0	0	0	0
4	3	2	4	2	9	29	57	100	0	0	0	0	0	0
5	2	2	2	1	5	14	29	50	100	0	0	0	0	0

ORIGINAL FILED
OF POOR QUALITY

LST,PRELAUNCH,LAUNCH,LANDING

MONTH = 2 HOUR = 22

DATE OF RUN 8-14-94 TIME 17:30:22

LENGTH OF RUN
FREQ. OF RUN
SUM 1 SUM 2

PROB. 2
OF NO/GO
DAYS

J-1 J-2 J-3 J-4 J-5 J-6 J-7 J-8 J-9 J-10

1	21	29	45	27	0	0	0	0	0	0	0	0	0
2	3	8	16	10	100	0	0	0	0	0	0	0	0
3	3	5	3	5	50	100	0	0	0	0	0	0	0
4	1	2	3	2	19	38	100	0	0	0	0	0	0
5	1	1	1	1	6	13	33	100	0	0	0	0	0

ORIGINAL PROBABILITIES
OF POOR QUALITY

1ST PRELAUNCH, LAUNCH, LANDING

DATE OF RUN 8-14-84 TIME 17:30:22 MONTH = 2 HOUR = 23

LENGTH FREQ. OF RUN OF RUN

RUN	SUM 1		SUM 2		DAYS		J-1	J-2	J-3	J-4	J-5	J-6	J-7	J-8	J-9	J-10
	LENGTHS	FREQ.	LENGTHS	FREQ.	PROG. 2	OF NO/GO										
1	19	30	47	28			100	0	0	0	0	0	0	0	0	0
2	7	12	17	10			36	100	0	0	0	0	0	0	0	0
3	5	5	5	3			11	29	100	0	0	0	0	0	0	0

ORIGINAL FILED
OF POOR QUALITY

RUNDATE 8-14-84 TIME 17:30:22

ANY OF THE ABOVE FOR ALL OPERATIONS

		ANY OF THE ABOVE FOR ALL OPERATIONS																						
HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR					
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
JAN	24	21	22	24	23	24	27	35	35	36	34	35	34	34	32	33	32	38	32	25	26	26	26	26
FEB	27	23	27	26	26	26	25	34	36	38	40	38	41	41	41	41	43	43	38	33	26	26	27	28

ORIGINAL FILED
OF POOR QUALITY

APPENDIX B

STS-13 Final Meteorological Data for Ascent

STS-13 METEOROLOGICAL DATA TAPE ASCENT

ORIGINAL PAGE IS
OF POOR QUALITY

STS NUMBER 13

LAUNCH DATE 04 06 1358

METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
00021	015	310	15.8	.1015+04	.1219+04	7.2
00030	020	305	15.6	.1012+04	.1217+04	7.1
00040	019	290	15.3	.1009+04	.1214+04	6.9
00050	025	280	15.0	.1005+04	.1211+04	6.7
00060	030	319	14.7	.1001+04	.1207+04	6.5
00070	020	308	14.4	.9978+03	.1204+04	6.4
00080	024	311	14.1	.9942+03	.1201+04	6.2
00090	024	320	13.9	.9906+03	.1198+04	6.0
00100	025	310	13.6	.9870+03	.1195+04	5.8
00110	027	314	13.3	.9834+03	.1192+04	5.7
00120	025	315	13.0	.9799+03	.1189+04	5.5
00130	027	311	12.8	.9763+03	.1186+04	5.2
00140	026	315	12.5	.9728+03	.1182+04	5.0
00150	025	317	12.3	.9692+03	.1179+04	4.7
00160	029	320	12.0	.9657+03	.1176+04	4.4
00170	032	323	11.8	.9622+03	.1173+04	4.2
00180	031	317	11.6	.9587+03	.1169+04	3.9
00190	032	321	11.3	.9553+03	.1166+04	3.6
00200	035	325	11.1	.9518+03	.1163+04	3.3
00210	034	318	10.8	.9483+03	.1160+04	3.1
00220	032	314	10.6	.9449+03	.1157+04	2.8
00230	033	312	10.3	.9415+03	.1153+04	2.6
00240	034	316	10.1	.9381+03	.1150+04	2.4
00250	036	317	9.8	.9346+03	.1147+04	2.2
00260	031	316	9.6	.9312+03	.1144+04	2.0
00270	031	310	9.3	.9277+03	.1141+04	1.8
00280	034	307	9.1	.9244+03	.1138+04	1.7
00290	035	306	8.8	.9210+03	.1135+04	1.5
00300	035	312	8.6	.9176+03	.1131+04	1.3
00310	033	313	8.3	.9142+03	.1128+04	1.1
00320	032	310	8.1	.9109+03	.1125+04	.9
00330	035	305	7.8	.9075+03	.1122+04	.7
00340	035	306	7.6	.9042+03	.1119+04	.6
00350	033	310	7.3	.9008+03	.1116+04	.4
00360	030	315	7.1	.8975+03	.1113+04	.2
00370	027	314	6.8	.8942+03	.1110+04	.1
00380	026	309	6.6	.8909+03	.1107+04	-.1
00390	031	306	6.3	.8876+03	.1103+04	-.3
00400	031	310	6.1	.8843+03	.1100+04	-.5
00410	030	310	5.8	.8811+03	.1097+04	-.6
00420	036	306	5.6	.8778+03	.1094+04	-.8
00430	038	304	5.4	.8745+03	.1091+04	-1.2
00440	039	305	5.5	.8713+03	.1087+04	-1.6
00450	034	309	5.4	.8681+03	.1083+04	-2.0
00460	033	308	5.4	.8648+03	.1079+04	-2.4
00470	035	306	5.3	.8616+03	.1075+04	-2.8
00480	034	307	5.3	.8584+03	.1072+04	-3.1
00490	032	312	5.3	.8552+03	.1068+04	-3.7
00500	035	308	5.2	.8521+03	.1064+04	-4.1
00510	038	307	5.1	.8489+03	.1061+04	-4.5

(Continued)

STS NUMBER 13
LAUNCH DATE 84 4 6 1353
METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
005200	035	312	5.1	.9427+03	.1037+04	-4.9
005100	031	316	5.3	.9426+03	.1052+04	-6.1
005200	036	312	5.5	.9395+03	.1048+04	-7.3
005300	038	315	5.8	.9364+03	.1043+04	-8.5
005400	039	319	6.0	.9333+03	.1039+04	-9.7
005500	036	310	6.2	.9302+03	.1034+04	-10.9
005600	039	294	6.4	.9271+03	.1030+04	-12.2
005700	042	300	6.6	.9240+03	.1025+04	-13.4
005800	043	301	6.9	.9210+03	.1020+04	-14.6
005900	043	303	7.1	.9180+03	.1016+04	-15.8
006000	044	299	7.3	.9149+03	.1012+04	-17.0
006100	045	298	7.3	.9119+03	.1008+04	-17.0
006200	042	301	7.3	.9089+03	.1004+04	-17.0
006300	046	303	7.2	.9059+03	.1001+04	-17.0
006400	049	301	7.2	.9028+03	.9999+03	-17.0
006500	050	303	7.2	.9000+03	.9973+03	-17.0
006600	044	307	7.2	.8970+03	.9947+03	-17.1
006700	044	303	7.2	.8941+03	.9921+03	-17.1
006800	045	294	7.1	.8911+03	.9895+03	-17.1
006900	045	301	7.1	.8882+03	.9869+03	-17.1
007000	042	303	7.1	.8853+03	.9843+03	-17.1
007100	042	298	7.1	.8824+03	.9817+03	-17.1
007200	047	295	7.0	.8795+03	.9791+03	-17.2
007300	047	297	7.0	.8766+03	.9765+03	-17.2
007400	045	297	6.9	.8738+03	.9738+03	-17.2
007500	046	293	6.9	.8709+03	.9709+03	-17.2
007600	048	291	6.9	.8680+03	.9680+03	-17.3
007700	045	292	6.8	.8651+03	.9651+03	-17.3
007800	048	290	6.8	.8622+03	.9622+03	-17.3
007900	051	289	6.7	.8593+03	.9593+03	-17.4
008000	054	291	6.7	.8564+03	.9564+03	-17.4
008100	055	294	6.7	.8535+03	.9535+03	-17.5
008200	053	294	6.7	.8511+03	.9511+03	-17.5
008300	057	290	6.7	.8484+03	.9484+03	-17.6
008400	060	290	6.7	.8456+03	.9456+03	-17.6
008500	056	292	6.6	.8428+03	.9428+03	-17.7
008600	056	293	6.6	.8401+03	.9401+03	-17.8
008700	058	292	6.6	.8373+03	.9373+03	-17.8
008800	059	292	6.6	.8346+03	.9346+03	-17.9
008900	057	295	6.6	.8319+03	.9319+03	-17.9
009000	056	295	6.6	.8292+03	.9292+03	-18.0
009100	057	293	6.4	.8265+03	.9265+03	-18.1
009200	059	289	6.3	.8238+03	.9238+03	-18.2
009300	061	290	6.1	.8211+03	.9211+03	-18.3
009400	060	294	6.0	.8184+03	.9184+03	-18.4
009500	056	295	5.8	.8158+03	.9158+03	-18.4
009600	057	294	5.6	.8131+03	.9131+03	-18.5
009700	060	291	5.5	.8105+03	.9105+03	-18.6
009800	061	293	5.3	.8078+03	.9078+03	-18.7
009900	059	293	5.2	.8052+03	.9052+03	-18.8

(Continued)

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ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
010000	059	286	5.3	.7026003	.879003	-18.9
010100	062	289	4.8	.6999003	.8766003	-19.0
010200	065	285	4.6	.6973003	.8740003	-19.2
010300	062	267	4.4	.6947003	.8718003	-19.3
010400	060	267	4.2	.6921003	.8687003	-19.4
010500	062	284	4.0	.6895003	.8661003	-19.5
010600	065	282	3.8	.6870003	.8635003	-19.7
010700	063	284	3.6	.6844003	.8609003	-19.8
010800	061	285	3.4	.6818003	.8583003	-19.9
010900	063	283	3.2	.6793003	.8557003	-20.1
011000	064	282	3.0	.6768003	.8532003	-20.2
011100	063	283	2.8	.6742003	.8507003	-20.4
011200	061	287	2.5	.6717003	.8482003	-20.5
011300	058	286	2.3	.6691003	.8457003	-20.7
011400	062	282	2.1	.6666003	.8432003	-20.9
011500	063	283	1.9	.6641003	.8408003	-21.0
011600	062	284	1.6	.6616003	.8383003	-21.2
011700	061	287	1.4	.6591003	.8358003	-21.4
011800	061	283	1.2	.6566003	.8333003	-21.6
011900	063	283	.9	.6542003	.8310003	-21.7
012000	062	286	.7	.6517003	.8285003	-21.9
012100	061	288	.5	.6492003	.8262003	-22.1
012200	060	284	.2	.6468003	.8238003	-22.3
012300	064	283	.0	.6443003	.8214003	-22.5
012400	062	284	-.3	.6419003	.8190003	-22.7
012500	061	283	-.5	.6394003	.8167003	-23.0
012600	061	281	-.8	.6370003	.8143003	-23.2
012700	063	280	-1.0	.6346003	.8120003	-23.4
012800	063	283	-1.3	.6322003	.8097003	-23.6
012900	061	281	-1.5	.6298003	.8073003	-23.8
013000	063	279	-1.8	.6274003	.8050003	-24.0
013100	065	279	-2.0	.6250003	.8027003	-24.2
013200	063	282	-2.3	.6226003	.8003003	-24.4
013300	063	279	-2.5	.6202003	.7980003	-24.6
013400	065	278	-2.8	.6178003	.7957003	-24.8
013500	066	278	-3.0	.6154003	.7933003	-25.1
013600	063	280	-3.3	.6131003	.7911003	-25.3
013700	062	277	-3.5	.6107003	.7888003	-25.5
013800	066	277	-3.8	.6084003	.7865003	-25.7
013900	066	278	-4.0	.6061003	.7842003	-25.9
014000	063	278	-4.3	.6037003	.7819003	-26.1
014100	064	277	-4.5	.6014003	.7796003	-26.3
014200	066	277	-4.8	.5991003	.7772003	-26.4
014300	063	267	-5.0	.5968003	.7749003	-26.6
014400	061	277	-5.2	.5945003	.7726003	-26.8
014500	063	276	-5.4	.5922003	.7703003	-27.0
014600	063	276	-5.7	.5899003	.7679003	-27.2
014700	060	277	-5.9	.5876003	.7656003	-27.3
014800	061	274	-6.1	.5853003	.7633003	-27.5
014900	062	273	-6.4	.5830003	.7610003	-27.5

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OF POOR QUALITY

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/CM ³)	DEW POINT (DEG C)
015200	061	274	-6.6	.5808+03	.7568+03	-27.7
015100	059	274	-6.8	.5785+03	.7565+03	-27.9
015200	064	271	-7.1	.5763+03	.7542+03	-28.1
015300	065	273	-7.3	.5740+03	.7520+03	-28.2
015400	062	276	-7.6	.5718+03	.7497+03	-28.4
015500	060	277	-7.8	.5695+03	.7475+03	-28.6
015600	063	275	-8.0	.5673+03	.7452+03	-28.8
015700	062	277	-8.3	.5651+03	.7430+03	-29.0
015800	060	280	-8.5	.5629+03	.7408+03	-29.1
015900	062	277	-9.0	.5607+03	.7385+03	-29.3
016200	062	280	-9.0	.5585+03	.7363+03	-29.5
016100	060	279	-9.3	.5563+03	.7342+03	-29.7
016200	060	277	-9.5	.5541+03	.7320+03	-29.9
016300	061	274	-9.8	.5519+03	.7298+03	-30.1
016400	066	275	-10.0	.5498+03	.7277+03	-30.3
016500	063	276	-10.3	.5476+03	.7255+03	-30.4
016600	065	273	-10.6	.5455+03	.7234+03	-30.6
016700	067	272	-10.8	.5433+03	.7213+03	-30.8
016900	065	275	-11.1	.5412+03	.7191+03	-31.0
016900	067	273	-11.3	.5390+03	.7170+03	-31.2
017200	067	272	-11.6	.5369+03	.7149+03	-31.4
017100	066	276	-11.8	.5348+03	.7127+03	-31.6
017200	066	275	-12.1	.5326+03	.7105+03	-31.8
017300	067	274	-12.3	.5305+03	.7084+03	-32.0
017400	068	278	-12.6	.5284+03	.7062+03	-32.2
017500	062	278	-12.8	.5263+03	.7041+03	-32.3
017600	065	277	-13.0	.5242+03	.7019+03	-32.5
017700	065	277	-13.3	.5221+03	.6998+03	-32.7
017800	061	280	-13.5	.5201+03	.6976+03	-32.9
017900	062	276	-13.8	.5180+03	.6955+03	-33.1
018000	065	278	-14.0	.5159+03	.6934+03	-33.3
018100	063	278	-14.3	.5139+03	.6913+03	-33.5
018200	065	275	-14.5	.5116+03	.6892+03	-33.6
018300	067	277	-14.8	.5098+03	.6871+03	-33.8
018400	064	277	-15.0	.5077+03	.6851+03	-34.0
018500	067	275	-15.3	.5057+03	.6830+03	-34.1
018600	070	274	-15.6	.5036+03	.6810+03	-34.3
018700	067	276	-15.8	.5016+03	.6789+03	-34.5
018800	068	276	-16.1	.4996+03	.6769+03	-34.7
018900	070	274	-16.3	.4976+03	.6748+03	-34.8
019000	068	277	-16.6	.4956+03	.6728+03	-35.0
019100	067	276	-16.9	.4936+03	.6708+03	-35.2
019200	059	275	-17.1	.4916+03	.6688+03	-35.4
019300	067	277	-17.4	.4896+03	.6668+03	-35.6
019400	064	277	-17.7	.4876+03	.6648+03	-35.8
019500	065	276	-17.9	.4856+03	.6628+03	-36.0
019600	066	277	-18.2	.4837+03	.6608+03	-36.3
019700	053	276	-18.5	.4817+03	.6588+03	-36.5
019800	064	274	-18.8	.4798+03	.6568+03	-36.7
019900	066	275	-19.0	.4778+03	.6549+03	-36.9

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METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
020000	062	276	-19.3	.4759+03	.6529+03	-37.1
020100	065	271	-19.5	.4739+03	.6508+03	-37.3
020200	067	269	-19.6	.4720+03	.6488+03	-37.5
020300	065	273	-20.0	.4700+03	.6467+03	-37.7
020400	066	271	-20.2	.4681+03	.6446+03	-37.9
020500	067	271	-20.4	.4662+03	.6426+03	-38.0
020600	068	274	-20.7	.4643+03	.6405+03	-38.2
020700	072	274	-20.9	.4624+03	.6385+03	-38.4
020800	073	277	-21.1	.4605+03	.6365+03	-38.6
020900	070	280	-21.4	.4586+03	.6344+03	-38.8
021000	075	280	-21.6	.4567+03	.6324+03	-39.0
021100	077	280	-21.8	.4548+03	.6303+03	-39.2
021200	077	282	-22.0	.4530+03	.6282+03	-39.3
021300	079	283	-22.2	.4511+03	.6260+03	-39.5
021400	082	281	-22.4	.4492+03	.6239+03	-39.6
021500	002	284	-22.5	.4474+03	.6218+03	-39.8
021600	082	286	-22.7	.4455+03	.6197+03	-40.0
021700	087	288	-22.9	.4437+03	.6176+03	-40.1
021800	085	289	-23.1	.4419+03	.6156+03	-40.3
021900	086	288	-23.3	.4400+03	.6135+03	-40.4
022000	095	280	-23.5	.4382+03	.6114+03	-40.6
022100	095	289	-23.8	.4364+03	.6095+03	-40.8
022200	087	287	-24.0	.4346+03	.6075+03	-40.9
022300	086	291	-24.3	.4328+03	.6056+03	-41.1
022400	096	288	-24.5	.4310+03	.6037+03	-41.2
022500	088	287	-24.8	.4292+03	.6018+03	-41.4
022600	085	290	-25.0	.4274+03	.5999+03	-41.6
022700	087	287	-25.3	.4256+03	.5980+03	-41.7
022800	097	286	-25.5	.4238+03	.5961+03	-41.9
022900	094	289	-25.8	.4221+03	.5942+03	-42.0
023000	087	287	-26.0	.4203+03	.5924+03	-42.2
023100	088	286	-26.2	.4185+03	.5904+03	-42.4
023200	086	287	-26.4	.4168+03	.5884+03	-42.5
023300	098	287	-26.7	.4150+03	.5865+03	-42.7
023400	092	286	-26.9	.4133+03	.5845+03	-42.8
023500	093	286	-27.1	.4115+03	.5826+03	-43.0
023600	096	287	-27.3	.4098+03	.5807+03	-43.2
023700	101	285	-27.5	.4081+03	.5788+03	-43.3
023800	102	285	-27.8	.4064+03	.5768+03	-43.5
023900	104	287	-28.0	.4047+03	.5749+03	-43.6
024000	106	286	-28.2	.4030+03	.5730+03	-43.8
024100	110	287	-28.3	.4013+03	.5709+03	-43.9
024200	112	287	-28.5	.3996+03	.5688+03	-44.1
024300	114	288	-28.6	.3979+03	.5667+03	-44.2
024400	118	289	-28.8	.3962+03	.5647+03	-44.4
024500	121	288	-28.9	.3945+03	.5626+03	-44.5
024600	123	288	-29.0	.3928+03	.5605+03	-44.7
024700	129	287	-29.2	.3912+03	.5585+03	-44.8
024800	132	287	-29.3	.3895+03	.5564+03	-45.0
024900	133	225	-29.5	.3879+03	.5544+03	-45.1

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METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
025000	132	285	-29.6	.3862+03	.5524+03	-45.3
025100	134	284	-29.7	.3846+03	.5562+03	-45.4
025200	133	284	-29.8	.3829+03	.5481+03	-45.5
025300	136	284	-29.9	.3813+03	.5460+03	-45.6
025400	137	284	-30.0	.3797+03	.5439+03	-45.7
025500	138	283	-30.1	.3781+03	.5418+03	-45.8
025600	139	284	-30.2	.3765+03	.5398+03	-46.0
025700	138	285	-30.3	.3749+03	.5377+03	-46.1
025800	142	285	-30.4	.3733+03	.5356+03	-46.2
025900	144	285	-30.5	.3717+03	.5336+03	-46.3
026000	142	284	-30.6	.3701+03	.5315+03	-46.4
026100	143	285	-30.7	.3685+03	.5295+03	-46.5
026200	143	285	-30.9	.3669+03	.5275+03	-46.6
026300	143	285	-31.0	.3654+03	.5256+03	-46.7
026400	144	286	-31.1	.3638+03	.5236+03	-46.8
026500	141	295	-31.2	.3622+03	.5216+03	-46.8
026600	139	286	-31.4	.3607+03	.5197+03	-46.9
026700	142	284	-31.5	.3592+03	.5177+03	-47.0
026800	139	287	-31.6	.3576+03	.5158+03	-47.1
026900	140	285	-31.8	.3561+03	.5139+03	-47.2
027000	141	285	-31.9	.3546+03	.5120+03	-47.3
027100	139	286	-32.1	.3530+03	.5102+03	-47.4
027200	141	286	-32.1	.3515+03	.5084+03	-47.6
027300	137	286	-32.5	.3500+03	.5066+03	-47.7
027400	140	284	-32.7	.3485+03	.5049+03	-47.9
027500	136	285	-32.9	.3470+03	.5031+03	-48.0
027600	138	284	-33.1	.3455+03	.5014+03	-48.1
027700	137	284	-33.3	.3440+03	.4996+03	-48.3
027800	137	286	-33.5	.3425+03	.4979+03	-48.4
027900	139	286	-33.7	.3411+03	.4962+03	-48.6
028000	139	286	-33.9	.3396+03	.4944+03	-48.7
028100	140	289	-34.1	.3381+03	.4927+03	-48.9
028200	140	287	-34.3	.3367+03	.4910+03	-49.0
028300	140	287	-34.5	.3352+03	.4893+03	-49.2
028400	140	290	-34.7	.3337+03	.4876+03	-49.4
028500	141	288	-34.9	.3323+03	.4859+03	-49.5
028600	144	290	-35.2	.3309+03	.4843+03	-49.7
028700	144	292	-35.4	.3294+03	.4826+03	-49.9
028800	142	289	-35.6	.3280+03	.4809+03	-50.1
028900	141	288	-35.8	.3266+03	.4793+03	-50.2
029000	143	289	-36.0	.3252+03	.4776+03	-50.4
029100	140	287	-36.1	.3237+03	.4758+03	-50.6
029200	142	286	-36.3	.3223+03	.4740+03	-50.7
029300	142	287	-36.4	.3209+03	.4723+03	-50.9
029400	141	287	-36.6	.3195+03	.4705+03	-51.0
029500	140	287	-36.8	.3181+03	.4687+03	-51.2
029600	141	288	-36.9	.3167+03	.4670+03	-51.4
029700	139	286	-37.0	.3153+03	.4652+03	-51.5
029800	141	288	-37.2	.3139+03	.4635+03	-51.7
029900	139	287	-37.3	.3126+03	.4618+03	-51.8

(Continued)

STS NUMBER 13 LAUNCH DATE 64 4 6 1358 METEOROLOGICAL DATA TAPE	ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
030700	142	142	287	-37.5	.711203	.460003	-52.0
030100	144	144	285	-37.7	.709803	.458303	-52.1
030200	144	144	295	-37.8	.708503	.456703	-52.2
030300	146	146	265	-38.0	.707103	.455003	-52.3
030400	145	145	288	-38.2	.705803	.453303	-52.4
030500	148	148	290	-38.3	.704403	.451603	-52.5
030600	149	149	268	-38.5	.703103	.450003	-52.6
030700	150	150	258	-38.7	.701703	.448303	-52.7
030800	156	156	291	-38.9	.700403	.446703	-52.8
030900	155	155	269	-39.0	.699103	.445003	-52.9
031000	155	155	267	-39.2	.697803	.443403	-53.0
031100	155	155	297	-39.3	.696503	.441703	-53.1
031200	153	153	297	-39.4	.695103	.439903	-53.3
031300	153	153	267	-39.6	.693803	.438203	-53.4
031400	153	153	290	-39.7	.692503	.436503	-53.6
031500	149	149	290	-39.8	.691203	.434803	-53.9
031600	150	150	268	-39.9	.690003	.433103	-53.9
031700	149	149	289	-40.0	.688703	.431403	-54.0
031800	151	151	268	-40.2	.687403	.429703	-54.2
031900	150	150	288	-40.3	.686103	.428003	-54.3
032000	152	152	282	-40.4	.684803	.426303	-54.5
032100	152	152	289	-40.5	.683603	.424603	-54.6
032200	153	153	267	-40.6	.682303	.423003	-54.6
032300	155	155	287	-40.8	.681103	.421303	-54.7
032400	154	154	286	-40.9	.679803	.419603	-54.7
032500	155	155	266	-41.0	.678603	.418003	-54.8
032600	155	155	266	-41.1	.677303	.416303	-54.9
032700	157	157	265	-41.2	.676103	.414703	-54.9
032800	157	157	286	-41.4	.674903	.413103	-55.0
032900	159	159	286	-41.5	.673603	.411403	-55.0
033000	162	162	285	-41.6	.672403	.409803	-55.1
033100	163	163	267	-41.8	.671203	.408303	-55.2
033200	165	165	267	-42.0	.670003	.406903	-55.3
033300	168	168	286	-42.2	.668803	.405403	-55.5
033400	171	171	287	-42.4	.667603	.403903	-55.6
033500	172	172	285	-42.6	.666403	.402503	-55.7
033600	171	171	285	-42.8	.665203	.401003	-55.8
033700	171	171	284	-43.0	.664003	.399603	-55.9
033800	171	171	284	-43.2	.662803	.398103	-56.1
033900	171	171	265	-43.4	.661603	.396703	-56.2
034000	173	173	284	-43.6	.660403	.395203	-56.3
034100	173	173	284	-43.8	.659303	.393803	-56.5
034200	172	172	284	-44.0	.658103	.392303	-56.7
034300	173	173	285	-44.2	.656903	.390903	-56.9
034400	172	172	284	-44.4	.655803	.389403	-57.1
034500	172	172	285	-44.5	.654603	.388003	-57.2
034600	174	174	284	-44.7	.653503	.386603	-57.4
034700	175	175	265	-44.9	.652303	.385103	-57.6
034800	174	174	285	-45.1	.651203	.383703	-57.8
034900	174	174	285	-45.3	.650003	.382303	-58.0

(Continued)

STS NUMBER 13 LAUNCH DATE 84 4 6 1358 METEOROLOGICAL DATA TAPE	ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEV. POINT (DEG C)
035000	174	174	285	-45.5	2749.03	380.03	-53.2
035100	174	174	286	-45.7	2749.03	379.03	-53.2
035200	173	173	287	-45.9	2746.03	378.03	-58.5
035300	172	172	285	-46.1	2745.03	376.03	-58.5
035400	172	172	266	-46.3	2744.03	375.03	-58.7
035500	169	169	287	-46.5	2743.03	373.03	-58.0
035600	170	170	287	-46.7	2742.03	372.03	-59.0
035700	170	170	287	-46.9	2741.03	371.03	-59.1
035800	171	171	288	-47.1	2740.03	369.03	-59.2
035900	172	172	288	-47.3	2739.03	368.03	-59.4
036000	173	173	287	-47.5	2738.03	367.03	-59.5
036100	172	172	288	-47.7	2737.03	365.03	-59.6
036200	172	172	287	-47.9	2736.03	364.03	-59.8
036300	173	173	287	-48.1	2735.03	363.03	-59.9
036400	174	174	289	-48.3	2734.03	361.03	-60.1
036500	174	174	288	-48.5	2734.03	360.03	-60.3
036600	174	174	288	-48.7	2733.03	359.03	-60.4
036700	174	174	288	-48.9	2732.03	357.03	-60.5
036800	174	174	288	-49.1	2729.03	356.03	-60.7
036900	173	173	288	-49.3	2728.03	355.03	-60.8
037000	174	174	287	-49.5	2727.03	353.03	-61.0
037100	175	175	288	-49.7	2726.03	352.03	-61.2
037200	175	175	288	-50.0	2725.03	351.03	-61.4
037300	174	174	287	-50.2	2724.03	349.03	-61.6
037400	173	173	287	-50.5	2723.03	348.03	-61.8
037500	174	174	288	-50.7	2721.03	347.03	-62.0
037600	175	175	288	-50.9	2720.03	346.03	-62.3
037700	176	176	289	-51.2	2718.03	345.03	-62.5
037800	176	176	290	-51.4	2718.03	343.03	-62.7
037900	175	175	290	-51.7	2718.03	342.03	-62.9
038000	174	174	289	-51.9	2716.03	341.03	-63.1
038100	174	174	289	-52.2	2715.03	340.03	-63.4
038200	174	174	290	-52.4	2714.03	338.03	-63.6
038300	175	175	290	-52.7	2713.03	337.03	-63.9
038400	175	175	291	-53.0	2712.03	336.03	-64.1
038500	175	175	291	-53.2	2711.03	335.03	-64.4
038600	174	174	290	-53.5	2710.03	334.03	-64.7
038700	174	174	291	-53.8	2709.03	333.03	-64.9
038800	174	174	290	-54.1	2708.03	331.03	-65.2
038900	173	173	290	-54.3	2707.03	330.03	-65.4
039000	173	173	291	-54.6	2706.03	329.03	-65.7
039100	173	173	290	-54.8	2705.03	328.03	-65.8
039200	173	173	290	-55.0	2704.03	327.03	-65.9
039300	172	172	290	-55.1	2703.03	325.03	-66.0
039400	172	172	290	-55.3	2702.03	324.03	-66.1
039500	171	171	289	-55.5	2701.03	323.03	-66.2
039600	171	171	289	-55.7	2700.03	321.03	-66.4
039700	171	171	289	-55.9	2699.03	320.03	-66.5
039800	171	171	289	-56.0	2698.03	319.03	-66.6
039900	171	171	289	-56.2	2697.03	316.03	-66.7

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STS NUMBER 13 LAUNCH DATE 04 06 1158 METEOROLOGICAL DATA TAPE									
ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M ³)	DEW POINT (DEG C)			
040300	170	288	-56.4	.1872+03	.3169+03	-66.8			
040100	171	269	-56.7	.1962+03	.3158+03	-67.0			
040200	172	290	-56.9	.1953+03	.3146+03	-67.2			
040300	171	289	-57.2	.1944+03	.3135+03	-67.4			
040400	171	289	-57.4	.1934+03	.3124+03	-67.6			
040500	171	289	-57.7	.1925+03	.3112+03	-67.8			
040600	172	289	-58.0	.1916+03	.3101+03	-68.1			
040700	171	289	-58.2	.1906+03	.3090+03	-68.3			
040800	171	290	-58.5	.1897+03	.3079+03	-68.5			
040900	170	290	-58.7	.1888+03	.3068+03	-68.7			
041000	170	290	-59.0	.1879+03	.3057+03	-68.9			
041100	169	290	-59.1	.1870+03	.3043+03	-69.99			
041200	168	290	-59.2	.1861+03	.3030+03	-69.99			
041300	168	290	-59.3	.1852+03	.3017+03	-69.99			
041400	169	289	-59.4	.1843+03	.3004+03	-69.99			
041500	166	289	-59.5	.1834+03	.2991+03	-69.99			
041600	166	288	-59.6	.1825+03	.2972+03	-69.99			
041700	167	287	-59.7	.1816+03	.2963+03	-69.99			
041800	168	287	-59.8	.1808+03	.2952+03	-69.99			
041900	167	288	-59.9	.1799+03	.2939+03	-69.99			
042000	167	290	-60.0	.1790+03	.2926+03	-69.99			
042100	166	292	-60.0	.1782+03	.2912+03	-69.99			
042200	163	292	-60.0	.1773+03	.2898+03	-69.99			
042300	160	293	-60.0	.1764+03	.2884+03	-69.99			
042400	157	293	-60.0	.1756+03	.2870+03	-69.99			
042500	153	293	-60.0	.1747+03	.2856+03	-69.99			
042600	150	294	-60.1	.1739+03	.2843+03	-69.99			
042700	147	294	-60.1	.1730+03	.2829+03	-69.99			
042800	143	295	-60.1	.1722+03	.2816+03	-69.99			
042900	140	294	-60.1	.1714+03	.2802+03	-69.99			
043000	137	294	-60.1	.1705+03	.2789+03	-69.99			
043100	134	293	-60.2	.1697+03	.2776+03	-69.99			
043200	132	293	-60.2	.1689+03	.2763+03	-69.99			
043300	129	293	-60.3	.1681+03	.2751+03	-69.99			
043400	126	290	-60.4	.1673+03	.2738+03	-69.99			
043500	123	290	-60.4	.1664+03	.2726+03	-69.99			
043600	120	289	-60.5	.1656+03	.2714+03	-69.99			
043700	118	287	-60.6	.1648+03	.2701+03	-69.99			
043800	120	284	-60.7	.1640+03	.2689+03	-69.99			
043900	120	282	-60.7	.1632+03	.2677+03	-69.99			
044000	118	283	-60.8	.1624+03	.2665+03	-69.99			
044100	115	283	-60.9	.1616+03	.2653+03	-69.99			
044200	114	280	-61.0	.1609+03	.2641+03	-69.99			
044300	114	280	-61.0	.1601+03	.2629+03	-69.99			
044400	113	279	-61.1	.1593+03	.2617+03	-69.99			
044500	115	276	-61.2	.1585+03	.2606+03	-69.99			
044600	115	274	-61.3	.1578+03	.2594+03	-69.99			
044700	118	273	-61.4	.1570+03	.2582+03	-69.99			
044800	122	272	-61.4	.1562+03	.2571+03	-69.99			
044900	124	272	-61.5	.1555+03	.2559+03	-69.99			

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STS NUMBER 13
LAUNCH DATE 64 4 6 1358
METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
44500	129	272	-61.6	.1587+03	.258+03	-9999.
445100	132	273	-61.7	.153+03	.253+03	-9999.
445200	134	273	-61.7	.153+03	.253+03	-9999.
445300	136	271	-61.8	.152+03	.251+03	-9999.
445400	134	270	-61.8	.151+03	.251+03	-9999.
445500	132	269	-61.9	.1510+03	.249+03	-9999.
445600	130	267	-62.0	.150+03	.247+03	-9999.
445700	131	266	-62.0	.1495+03	.2467+03	-9999.
445800	134	267	-62.1	.1488+03	.2455+03	-9999.
445900	135	268	-62.1	.1480+03	.244+03	-9999.
446000	133	268	-62.2	.1473+03	.243+03	-9999.
446100	134	267	-62.2	.1466+03	.242+03	-9999.
446200	133	266	-62.1	.1459+03	.2408+03	-9999.
446300	133	266	-62.1	.1452+03	.239+03	-9999.
446400	135	266	-62.0	.1445+03	.238+03	-9999.
446500	137	267	-62.0	.1437+03	.2372+03	-9999.
446600	138	260	-62.0	.1430+03	.236+03	-9999.
446700	138	270	-61.9	.1423+03	.2348+03	-9999.
446800	142	271	-61.9	.1417+03	.233+03	-9999.
446900	139	271	-61.8	.1410+03	.232+03	-9999.
447000	137	272	-61.8	.1403+03	.2312+03	-9999.
447100	140	268	-61.7	.1396+03	.229+03	-9999.
447200	142	268	-61.5	.1389+03	.2287+03	-9999.
447300	143	272	-61.4	.1382+03	.227+03	-9999.
447400	143	274	-61.3	.1376+03	.2262+03	-9999.
447500	146	274	-61.2	.1369+03	.2249+03	-9999.
447600	147	276	-61.0	.1362+03	.2237+03	-9999.
447700	146	276	-60.9	.1356+03	.2225+03	-9999.
447800	148	278	-60.8	.1349+03	.2213+03	-9999.
447900	152	279	-60.6	.1342+03	.220+03	-9999.
448000	152	279	-60.5	.1336+03	.2188+03	-9999.
448100	151	278	-60.4	.1329+03	.2177+03	-9999.
448200	149	277	-60.4	.1323+03	.2166+03	-9999.
448300	150	276	-60.3	.1316+03	.2155+03	-9999.
448400	150	275	-60.2	.1310+03	.2143+03	-9999.
448500	149	276	-60.2	.1304+03	.2132+03	-9999.
448600	147	277	-60.1	.1297+03	.2121+03	-9999.
448700	145	277	-60.0	.1291+03	.2110+03	-9999.
448800	143	277	-59.9	.1285+03	.2099+03	-9999.
448900	140	281	-59.9	.1279+03	.2089+03	-9999.
449000	137	280	-59.8	.1273+03	.2078+03	-9999.
449100	133	281	-59.8	.1266+03	.2068+03	-9999.
449200	127	281	-59.8	.1260+03	.2058+03	-9999.
449300	122	281	-59.8	.1254+03	.2048+03	-9999.
449400	119	281	-59.8	.1246+03	.2038+03	-9999.
449500	116	280	-59.8	.1242+03	.2028+03	-9999.
449600	112	280	-59.8	.1236+03	.2018+03	-9999.
449700	109	279	-59.8	.1230+03	.2008+03	-9999.
449800	107	277	-59.8	.1224+03	.1999+03	-9999.
449900	106	277	-59.8	.1218+03	.1989+03	-9999.

ORIGINAL
OF POOR QUALITY

ORIGINAL DATA
OF POOR QUALITY

(Continued)

STS NUMBER 13
LAUNCH DATE 64 4 6 1356
METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/CM ³)	DEW POINT (DEG C)
50200	106	277	-59.8	.1206+03	.1970+03	-9999.
50100	107	277	-59.8	.1206+03	.1970+03	-9999.
50200	108	274	-59.9	.1201+03	.1961+03	-9999.
50300	106	272	-59.9	.1195+03	.1952+03	-9999.
50400	106	271	-59.9	.1189+03	.1943+03	-9999.
50500	105	269	-59.9	.1183+03	.1933+03	-9999.
50600	104	267	-60.0	.1178+03	.1924+03	-9999.
50700	105	265	-60.0	.1172+03	.1915+03	-9999.
50800	105	263	-60.0	.1166+03	.1906+03	-9999.
50900	105	262	-60.1	.1161+03	.1897+03	-9999.
51000	105	262	-60.1	.1155+03	.1888+03	-9999.
51100	107	260	-60.1	.1149+03	.1879+03	-9999.
51200	108	259	-60.1	.1144+03	.1870+03	-9999.
51300	109	257	-60.1	.1138+03	.1861+03	-9999.
51400	111	255	-60.1	.1133+03	.1852+03	-9999.
51500	112	255	-60.1	.1127+03	.1843+03	-9999.
51600	113	256	-60.1	.1122+03	.1834+03	-9999.
51700	114	256	-60.1	.1116+03	.1825+03	-9999.
51800	118	255	-60.1	.1111+03	.1817+03	-9999.
51900	119	254	-60.1	.1106+03	.1808+03	-9999.
52000	119	254	-60.1	.1100+03	.1799+03	-9999.
52100	120	253	-60.2	.1095+03	.1791+03	-9999.
52200	119	254	-60.3	.1090+03	.1783+03	-9999.
52300	121	253	-60.4	.1084+03	.1775+03	-9999.
52400	119	255	-60.5	.1079+03	.1767+03	-9999.
52500	116	258	-60.5	.1074+03	.1759+03	-9999.
52600	114	259	-60.6	.1069+03	.1752+03	-9999.
52700	112	261	-60.7	.1063+03	.1744+03	-9999.
52800	109	264	-60.8	.1058+03	.1736+03	-9999.
52900	107	265	-60.9	.1053+03	.1728+03	-9999.
53000	105	265	-61.0	.1048+03	.1721+03	-9999.
53100	103	267	-61.1	.1043+03	.1713+03	-9999.
53200	101	268	-61.2	.1038+03	.1705+03	-9999.
53300	097	268	-61.2	.1033+03	.1698+03	-9999.
53400	094	271	-61.3	.1028+03	.1690+03	-9999.
53500	091	272	-61.4	.1023+03	.1682+03	-9999.
53600	097	273	-61.5	.1018+03	.1675+03	-9999.
53700	094	274	-61.6	.1013+03	.1667+03	-9999.
53800	092	272	-61.6	.1008+03	.1660+03	-9999.
53900	078	272	-61.7	.1003+03	.1652+03	-9999.
54000	075	271	-61.8	.9980+02	.1645+03	-9999.
54100	073	269	-61.9	.9931+02	.1637+03	-9999.
54200	068	274	-61.9	.9883+02	.1630+03	-9999.
54300	065	272	-62.0	.9834+02	.1622+03	-9999.
54400	064	266	-62.0	.9786+02	.1615+03	-9999.
54500	064	266	-62.1	.9739+02	.1607+03	-9999.
54600	065	265	-62.2	.9691+02	.1600+03	-9999.
54700	066	263	-62.2	.9644+02	.1593+03	-9999.
54800	068	263	-62.3	.9597+02	.1585+03	-9999.
54900	070	263	-62.3	.9550+02	.1578+03	-9999.

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STS NUMBER 13 LAUNCH DATE 04 06 1358 METEOROLOGICAL DATA TAPE									
ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (CEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)			
055200	073	264	-62.4	9503.02	.1521.03	-9999.			
055100	075	263	-62.5	9450.02	.1506.03	-9999.			
055200	076	264	-62.5	9410.02	.1517.03	-9999.			
055300	076	267	-62.6	9364.02	.1506.03	-9999.			
055400	080	266	-62.7	9318.02	.1502.03	-9999.			
055500	082	266	-62.7	9273.02	.1535.03	-9999.			
055600	083	267	-62.8	9227.02	.1528.03	-9999.			
055700	086	267	-62.9	9182.02	.1521.03	-9999.			
055800	089	266	-63.0	9137.02	.1514.03	-9999.			
055900	099	269	-63.0	9093.02	.1501.03	-9999.			
056000	091	269	-63.1	9048.02	.1501.03	-9999.			
057000	086	265	-64.8	8612.02	.1446.03	-9999.			
058000	081	264	-67.5	8192.02	.1380.03	-9999.			
059000	069	264	-67.9	7790.02	.1322.03	-9999.			
060000	055	267	-67.6	7408.02	.1256.03	-9999.			
061000	043	272	-65.8	7047.02	.1180.03	-9999.			
062000	032	280	-62.5	6706.02	.1109.03	-9999.			
063000	022	294	-63.2	6384.02	.1059.03	-9999.			
064000	018	302	-63.4	6078.02	.1009.03	-9999.			
065000	014	301	-63.2	5786.02	.9601.02	-9999.			
066000	009	292	-63.0	5508.02	.9131.02	-9999.			
067000	008	258	-63.8	5243.02	.8725.02	-9999.			
068000	009	236	-64.4	4991.02	.8329.02	-9999.			
069000	011	236	-64.3	4750.02	.7923.02	-9999.			
070000	009	244	-63.3	4522.02	.7507.02	-9999.			
071000	003	247	-62.0	4305.02	.7103.02	-9999.			
072000	005	103	-60.5	4101.02	.6718.02	-9999.			
073000	012	109	-58.7	3907.02	.6347.02	-9999.			
074000	015	129	-58.6	3723.02	.6045.02	-9999.			
075000	013	130	-58.8	3549.02	.5768.02	-9999.			
076000	014	090	-56.6	3383.02	.5442.02	-9999.			
077000	022	081	-55.8	3226.02	.5171.02	-9999.			
078000	028	083	-56.1	3076.02	.4937.02	-9999.			
079000	032	086	-56.5	2933.02	.4716.02	-9999.			
080000	032	091	-55.8	2757.02	.4483.02	-9999.			
081000	032	094	-55.0	2666.02	.4261.02	-9999.			
082000	031	097	-54.0	2545.02	.4046.02	-9999.			
083000	029	103	-52.8	2428.02	.3839.02	-9999.			
084000	029	102	-51.7	2317.02	.3638.02	-9999.			
085000	032	097	-49.3	2213.02	.3444.02	-9999.			
086000	037	094	-49.2	2113.02	.3287.02	-9999.			
087000	042	092	-48.1	2018.02	.3124.02	-9999.			
088000	047	090	-46.2	1926.02	.2959.02	-9999.			
089000	051	088	-45.2	1843.02	.2817.02	-9999.			
090000	055	086	-44.1	1762.02	.2680.02	-9999.			
091000	059	088	-42.6	1684.02	.2547.02	-9999.			
092000	061	090	-41.6	1611.02	.2424.02	-9999.			
093000	062	092	-41.4	1541.02	.2316.02	-9999.			
094000	062	094	-41.7	1474.02	.2219.02	-9999.			
095000	061	096	-42.0	1410.02	.2125.02	-9999.			

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STS NUMBER 13	LAUNCH DATE 84 4 6 1358	METEOROLOGICAL DATA TAPE	ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M ³)	DEW POINT (DEG C)
			96240	C59	297	-41.9	.1348+02	.2031+02	-9999.
			997300	C57	297	-41.5	.1290+02	.1940+02	-9999.
			998700	C55	296	-41.1	.1234+02	.1853+02	-9999.
			999000	C42	297	-41.1	.1175+02	.1764+02	-9999.
			100300	C38	100	-41.2	.1119+02	.1680+02	-9999.
			101000	C38	106	-44.9	.1065+02	.1626+02	-9999.
			102300	C42	256	-43.7	.1014+02	.1540+02	-9999.
			103000	C45	253	-40.2	.9660+01	.1444+02	-9999.
			104000	C36	248	-39.7	.9198+01	.1372+02	-9999.
			105000	C35	252	-42.1	.8758+01	.1320+02	-9999.
			106200	C30	263	-37.3	.8339+01	.1232+02	-9999.
			107000	C32	258	-36.2	.7986+01	.1174+02	-9999.
			108000	C32	255	-38.2	.7647+01	.1134+02	-9999.
			109000	C43	244	-39.4	.7318+01	.1091+02	-9999.
			110000	C47	247	-29.2	.7010+01	.1001+02	-9999.
			111000	C21	239	-31.8	.6722+01	.9700+01	-9999.
			112000	C32	240	-40.3	.6436+01	.9628+01	-9999.
			113000	C37	259	-35.8	.6160+01	.9041+01	-9999.
			114000	C15	270	-34.5	.5901+01	.8614+01	-9999.
			115000	C27	291	-37.9	.5651+01	.8369+01	-9999.
			116000	C37	109	-32.8	.5413+01	.7845+01	-9999.
			117000	C23	103	-28.2	.5189+01	.7379+01	-9999.
			118000	C20	239	-29.8	.4977+01	.7123+01	-9999.
			119000	C21	246	-32.8	.4770+01	.6914+01	-9999.
			120000	C30	258	-30.8	.4571+01	.6571+01	-9999.
			121000	C23	234	-31.2	.4382+01	.6308+01	-9999.
			122000	C18	272	-32.2	.4200+01	.6071+01	-9999.
			123000	C20	121	-30.3	.4026+01	.5776+01	-9999.
			124000	C38	188	-28.2	.3860+01	.5490+01	-9999.
			125000	C36	262	-22.7	.3704+01	.5152+01	-9999.
			126000	C16	311	-21.2	.3556+01	.4916+01	-9999.
			127000	C23	285	-23.2	.3414+01	.4757+01	-9999.
			128000	C25	265	-21.0	.3277+01	.4529+01	-9999.
			129000	C35	253	-19.3	.3148+01	.4319+01	-9999.
			130000	C40	260	-23.2	.3022+01	.4211+01	-9999.
			131000	C37	281	-23.9	.2901+01	.4055+01	-9999.
			132000	C35	295	-21.8	.2785+01	.3859+01	-9999.
			133000	C42	315	-21.2	.2673+01	.3696+01	-9999.
			134000	C50	322	-24.6	.2567+01	.3598+01	-9999.
			135000	C43	328	-31.7	.2462+01	.3551+01	-9999.
			136000	C21	337	-29.6	.2359+01	.3376+01	-9999.
			137000	C05	275	-24.7	.2263+01	.3173+01	-9999.
			138000	C16	229	-19.9	.2173+01	.2989+01	-9999.
			139000	C28	236	-18.2	.2087+01	.2852+01	-9999.
			140000	C37	251	-20.7	.2005+01	.2767+01	-9999.
			141000	C43	267	-21.2	.1925+01	.2661+01	-9999.
			142000	C40	267	-18.8	.1849+01	.2532+01	-9999.
			143000	C25	315	-16.2	.1777+01	.2408+01	-9999.
			144000	C32	337	-16.2	.1707+01	.2314+01	-9999.
			145000	C25	342	-16.2	.1641+01	.2224+01	-9999.

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STS NUMBER 13
LAUNCH DATE 84 4 6 1358
METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
146000	C23	337	-18.2	.1516+01	.2153+01	-9999.
147000	C20	330	-17.2	.1513+01	.2062+01	-9999.
148000	C13	322	-18.9	.1455+01	.1993+01	-9999.
149000	C10	282	-15.8	.1398+01	.1893+01	-9999.
150000	C20	255	-10.1	.1384+01	.1780+01	-9999.
151000	C35	256	-7.2	.1293+01	.1694+01	-9999.
152000	C45	258	-6.2	.1244+01	.1624+01	-9999.
153000	C45	253	-8.5	.1198+01	.1576+01	-9999.
154000	C43	247	-12.2	.1152+01	.1537+01	-9999.
155000	C43	249	-13.8	.1108+01	.1471+01	-9999.
156000	C47	257	-8.7	.1056+01	.1404+01	-9999.
157000	C45	269	-8.6	.1023+01	.1350+01	-9999.
158000	C42	277	-10.8	.0865+00	.1310+01	-9999.
159000	C33	282	-11.2	.0947+00	.1261+01	-9999.
160000	C27	282	-13.5	.09135+00	.1210+01	-9999.
161000	C25	280	-9.1	.0778+00	.1158+01	-9999.
162000	C27	281	-6.4	.0447+00	.1123+01	-9999.
163000	C30	286	-3.5	.0132+00	.1051+01	-9999.
164000	C32	289	-1.2	.7831+00	.1001+01	-9999.
165000	C33	290	-1.2	.7543+00	.9661+01	-9999.
166000	C33	289	-1.2	.7266+00	.9306+00	-9999.
167000	C32	288	-2.2	.6988+00	.8997+00	-9999.
168000	C27	288	-5.3	.6738+00	.8762+00	-9999.
169000	C21	267	-9.5	.6484+00	.8567+00	-9999.
170000	C18	290	-11.2	.6237+00	.8293+00	-9999.
171000	C21	272	-11.2	.5999+00	.7977+00	-9999.
172000	C25	268	-11.2	.5770+00	.7672+00	-9999.
173000	C25	272	-12.2	.5549+00	.7406+00	-9999.
174000	C30	260	-13.2	.5336+00	.7150+00	-9999.
175000	C37	288	-12.7	.5131+00	.6863+00	-9999.
176000	C42	295	-10.9	.4935+00	.6556+00	-9999.
177000	C45	300	-9.7	.4747+00	.6277+00	-9999.
178000	C47	303	-10.8	.4567+00	.6063+00	-9999.
179000	C45	303	-13.7	.4392+00	.5899+00	-9999.
180000	C42	300	-16.8	.4222+00	.5737+00	-9999.
181000	C37	294	-19.2	.4056+00	.5563+00	-9999.
182000	C32	284	-19.2	.3897+00	.5345+00	-9999.
183000	C25	271	-17.3	.3744+00	.5097+00	-9999.
184000	C18	257	-13.0	.3599+00	.4820+00	-9999.
185000	C13	237	-12.2	.3461+00	.4620+00	-9999.
186000	C08	206	-13.4	.3328+00	.4463+00	-9999.
187000	C06	161	-16.1	.3200+00	.4337+00	-9999.
188000	C08	129	-17.2	.3076+00	.4186+00	-9999.
189000	C10	120	-16.1	.2956+00	.4006+00	-9999.
190000	C11	119	-14.2	.2841+00	.3822+00	-9999.
191000	C13	125	-12.0	.2733+00	.3645+00	-9999.
192000	C16	131	-10.2	.2629+00	.3482+00	-9999.
193000	C20	136	-13.4	.2529+00	.3353+00	-9999.
194000	C25	138	-14.5	.2432+00	.3275+00	-9999.
195000	C32	138	-18.7	.2338+00	.3201+00	-9999.

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STS NUMBER 13 LAUNCH DATE 84 4 6 1358 METEOROLOGICAL DATA TAPE									
ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)			
196300	C37	139	-22.6	.7245+00	.3111+00	-9999.			
197000	C40	139	-24.2	.2160+00	.3022+00	-9999.			
198000	C40	142	-24.2	.2084+00	.2916+00	-9999.			
199000	C38	148	-25.2	.2000+00	.2809+00	-9999.			
200000	C35	158	-26.6	.1919+00	.2712+00	-9999.			
201000	C32	174	-29.7	.1841+00	.2635+00	-9999.			
202000	C32	199	-31.8	.1765+00	.2548+00	-9999.			
203000	C35	222	-34.9	.1692+00	.2474+00	-9999.			
204000	C43	239	-35.2	.1621+00	.2373+00	-9999.			
205000	C54	249	-36.2	.1553+00	.2263+00	-9999.			
206000	C62	254	-36.2	.1488+00	.2167+00	-9999.			
207000	C69	258	-37.2	.1425+00	.2103+00	-9999.			
208000	C74	261	-39.1	.1365+00	.2023+00	-9999.			
209000	C76	262	-39.7	.1307+00	.1950+00	-9999.			
210000	C74	263	-41.2	.1251+00	.1879+00	-9999.			
211000	C72	264	-43.2	.1197+00	.1813+00	-9999.			
212000	C67	265	-43.3	.1145+00	.1735+00	-9999.			
213000	C60	266	-44.8	.1095+00	.1670+00	-9999.			
214000	C52	267	-45.3	.1047+00	.1601+00	-9999.			
215000	C45	270	-46.2	.1001+00	.1536+00	-9999.			
216000	C38	274	-46.2	.9570-01	.1469+00	-9999.			
217000	C33	282	-46.9	.9150-01	.1409+00	-9999.			
218000	C28	289	-47.4	.8750-01	.1350+00	-9999.			
219000	C27	300	-49.2	.8360-01	.1294+00	-9999.			
220000	C27	317	-49.2	.7990-01	.1243+00	-9999.			
221000	C27	323	-50.8	.7640-01	.1197+00	-9999.			
222000	C28	331	-52.2	.7300-01	.1151+00	-9999.			
223000	C30	336	-53.0	.6970-01	.1103+00	-9999.			
224000	C30	342	-54.1	.6650-01	.1058+00	-9999.			
225000	C30	342	-53.2	.6350-01	.1006+00	-9999.			
226000	C27	344	-51.7	.6060-01	.9534-01	-9999.			
227000	C23	344	-50.3	.5800-01	.9066-01	-9999.			
228000	C20	342	-49.2	.5540-01	.8616-01	-9999.			
229000	C16	337	-49.1	.5300-01	.8242-01	-9999.			
230000	C13	325	-49.7	.5070-01	.7903-01	-9999.			
231000	C11	306	-51.2	.4840-01	.7595-01	-9999.			
232000	C11	262	-52.5	.4620-01	.7295-01	-9999.			
233000	C13	265	-54.2	.4410-01	.7018-01	-9999.			
234000	C16	255	-55.2	.4210-01	.6728-01	-9999.			
235000	C20	251	-57.2	.4020-01	.6484-01	-9999.			
236000	C23	250	-58.2	.3830-01	.6206-01	-9999.			
237000	C25	250	-59.3	.3650-01	.5947-01	-9999.			
238000	C27	250	-60.9	.3480-01	.5711-01	-9999.			
239000	C28	252	-62.4	.3320-01	.5468-01	-9999.			
240000	C30	253	-63.9	.3160-01	.5261-01	-9999.			
241000	C30	255	-65.4	.3010-01	.5048-01	-9999.			
242000	C28	257	-67.0	.2870-01	.4849-01	-9999.			
243000	C27	258	-68.5	.2730-01	.4647-01	-9999.			
244000	C25	259	-70.0	.2600-01	.4455-01	-9999.			
245000	C23	258	-71.5	.2470-01	.4268-01	-9999.			

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SIS NUMBER 13
LAUNCH DATE 84 4 6 1358.
METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/CM ³)	DEW POINT (DEG C)
246300	C20	256	-72.2	.2350-01	.4073-01	-9999.
247300	C16	251	-73.6	.2230-01	.3893-01	-9999.
248300	C13	241	-75.1	.2120-01	.3729-01	-9999.
249300	C10	223	-77.2	.2010-01	.3573-01	-9999.
250300	C08	190	-79.2	.1910-01	.3430-01	-9999.
251300	C11	160	-82.7	.1810-01	.3276-01	-9999.
252300	C15	142	-82.2	.1720-01	.3132-01	-9999.
253000	C21	134	-83.7	.1630-01	.2998-01	-9999.
254300	C28	129	-84.3	.1550-01	.2858-01	-9999.
255300	C35	126	-85.2	.1470-01	.2724-01	-9999.
256300	C42	125	-86.2	.1390-01	.2589-01	-9999.
257300	C48	123	-86.8	.1320-01	.2468-01	-9999.
258200	C55	123	-88.2	.1250-01	.2354-01	-9999.
259000	C62	122	-88.9	.1180-01	.2231-01	-9999.
260300	C50	121	-87.9	.1134-01	.2143-01	-9999.
261300	C57	121	-86.9	.1084-01	.2059-01	-9999.
262300	C55	121	-85.9	.1046-01	.1977-01	-9999.
263000	C52	121	-85.0	.1005-01	.1900-01	-9999.
264300	C50	121	-84.0	.9653-02	.1825-01	-9999.
265300	C48	121	-83.0	.9273-02	.1753-01	-9999.
266300	C45	121	-82.0	.8908-02	.1684-01	-9999.
267300	C43	121	-81.1	.8557-02	.1618-01	-9999.
268300	C40	121	-80.1	.8220-02	.1554-01	-9999.
269000	C38	121	-79.1	.7897-02	.1493-01	-9999.
270000	C36	120	-78.1	.7586-02	.1434-01	-9999.
271000	C33	120	-77.2	.7287-02	.1378-01	-9999.
272300	C31	120	-76.2	.7000-02	.1323-01	-9999.
273000	C28	120	-75.2	.6725-02	.1271-01	-9999.
274300	C26	120	-74.2	.6460-02	.1221-01	-9999.
275300	C32	131	-75.2	.5540-02	.9740-02	-9999.
280300	C35	132	-76.2	.4760-02	.8400-02	-9999.
283000	C31	121	-77.3	.4080-02	.7240-02	-9999.
286000	C28	108	-78.5	.3500-02	.6240-02	-9999.
289300	C27	394	-79.6	.3000-02	.5380-02	-9999.
292300	C29	779	-80.8	.2570-02	.4640-02	-9999.
295300	C31	366	-81.9	.2200-02	.4000-02	-9999.
298000	C24	263	-82.9	.1830-02	.3330-02	-9999.
301000	C14	752	-83.2	.1550-02	.2830-02	-9999.
304300	C36	334	-83.6	.1310-02	.2400-02	-9999.
307000	C22	279	-83.9	.1120-02	.2030-02	-9999.
310300	C48	271	-84.3	.9460-03	.1730-02	-9999.
313000	C66	269	-83.9	.8030-03	.1460-02	-9999.
316000	C66	269	-82.6	.6830-03	.1230-02	-9999.
319300	C64	269	-81.4	.5810-03	.1030-02	-9999.
322300	C58	269	-80.1	.4940-03	.8710-03	-9999.
325000	C48	268	-78.9	.4200-03	.7330-03	-9999.
328000	C33	266	-77.6	.3580-03	.6180-03	-9999.
331300	C35	267	-73.7	.3070-03	.5180-03	-9999.
334000	C38	266	-69.7	.2630-03	.4350-03	-9999.
337300	C42	265	-65.8	.2260-03	.3650-03	-9999.

ORIGINAL
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(Concluded)

STS NUMBER 12
LAUNCH DATE 84 4 6 1358
METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
340000	C45	263	-61.8	.1940-03	.3060-03	-9999.
343000	C46	261	-57.8	.1660-03	.2570-03	-9999.
346000	C49	264	-52.5	.1440-03	.2170-03	-9999.
349000	C50	262	-45.7	.1270-03	.1850-03	-9999.
352000	C49	254	-39.0	.1110-03	.1570-03	-9999.
355000	C47	254	-32.3	.9770-04	.1340-03	-9999.
358000	C43	247	-25.5	.8570-04	.1140-03	-9999.
361000	C33	250	-19.7	.7520-04	.9700-04	-9999.
364000	C34	244	-9.8	.6790-04	.8430-04	-9999.
367000	C35	236	-9	.6120-04	.7330-04	-9999.
370000	C36	226	7.9	.5510-04	.6370-04	-9999.
373000	C39	214	16.8	.4960-04	.5540-04	-9999.
376000	C44	201	25.8	.4460-04	.4920-04	-9999.
379000	C27	206	35.3	.4040-04	.4220-04	-9999.
382000	C29	203	45.6	.3700-04	.3730-04	-9999.
385000	C32	199	56.3	.3390-04	.3300-04	-9999.
388000	C34	197	67.2	.3120-04	.2930-04	-9999.
391000	C37	194	78.4	.2880-04	.2610-04	-9999.
394000	C41	192	89.9	.2670-04	.2340-04	-9999.
397000	C44	192	101.5	.2480-04	.2100-04	-9999.
400000	C48	189	113.3	.2300-04	.1890-04	-9999.

ORIGINAL PAGE
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SELECTED ATMOSPHERIC OBSERVATIONS FOR THE FLIGHT TESTS OF THE SPACE SHUTTLE VEHICLES

Vehicle Data					Surface Observations				Inflight Conditions			Count Down and Launch Comments of Meteorological Significance	
Seq. No.	Vehicle No.	Launch Date	Time (EST) Nearest Minute	Launch Pad	Thermodynamic ^a			Wind ^b		Max. Wind Below 60,000 ft			
					Press. ^c N/cm ²	Temp. (°C)	Rel. Hum. (%)	Speed (ft/sec)	Dir. (deg)	Alt. (ft)	Speed (ft/sec)	Dir. (deg)	
1	STS-1 Columbia	4/12/81	0700	39A	10.234 ^d	21	82	11.8 15.2	125 120	44,300	98	250	Wind directional change observed at Pad just prior to L+0. Onset of sea breeze.
2	STS-2 Columbia	11/12/81	1010	39A	10.166	23	61	27.0 27.0	345 355	36,300	158	286	
3	STS-3 Columbia	3/22/82	1100	39A	10.160	24	71	7.0 ^e 8.0 ^e	50 ^e 145 ^e	45,000	119	250	
4	STS-4 Columbia	6/27/82	1100 ^f	39A	10.200	29	70	5.8 ^g 4.9 ^g	133 ^g 141 ^g	47,900	37	329	
5	STS-5 Columbia	11/11/82	0719	39A	10.227	22	68	22.0 35.0	90 90	40,600	146	336	
6	STS-6 Challenger	4/4/83	1330	39A	10.183	23	55	12.7 16.4	63 55	46,100	155	277	
7	STS-7 Challenger	6/18/83	0733 ^f	39A	10.146	25	80	5.9 ^e 10.3 ^e	10 ^e 350 ^e	45,900	76	278	
8	STS-8 Challenger	8/30/83	0232 ^f	39A	10.111	24	97	8.8 14.0	269 268	45,100	30	349	
9	STS-9 (SL-1) Columbia	11/28/83	1100	39A	10.153	24	83	19.1 32.0	183 190	47,100	117	252	
10	STS-11 (41-B) Challenger	2/3/84	0800	39A	10.173	17	75	0.0 NA	0 NA	38,200	143	288	
11	STS-13 (41-C) Challenger	4/6/84	0858	39A	10.149	16	56	21.5 18.6	320 275	37,700	176	289	

- a. Pad 39A thermodynamic measurements taken at approximately 1.2 m (4 ft) above natural grade at camera site No. 3.
b. 1 min average prior to L+0 of 60 ft PLP (listed first) and 275 ft FSS winds measured above natural grade.
c. Pressure measurement applicable to 21 ft above MSL unless otherwise indicated.
d. Pressure measurement applicable to 14 ft above MSL.
e. 10 sec average prior to L+0.
f. Eastern Daylight Time.
g. 30 sec average prior to L+0.